INTRODUCTION

Welcome to the world of pool ownership. Please take your time in reviewing the information in this DVD and read all of the manufacturer's instructions that came with your pool. To operate your pool safely and trouble-free you need to know the basics of pool care. If you understand and follow a good maintenance routine- with proper filtration, balanced-pool water and a consistent chemical program, your pool water will be sparkling clean and easy to maintain.

You have heard the saying "an ounce of prevention is worth a pound of cure". This certainly applies to pool care. Preventative maintenance will save you time and money in correcting water problems that could have been avoided while protecting your pool and equipment from damage caused by imbalanced pool water. The amount of water in your pool is a figure you will reference often for chemical adjustments. If you do not know the water capacity of your pool click on Test Water at the main menu and TestMate™ 4 Pools will calculate the volume based on your pool dimensions. You should record the size of your pool, water capacity, manufacturer, make, model and serial number(s) of your pool and all equipment for future reference, along with any warranty papers and owner's manuals that came with your pool.

As a pool owner it is your responsibility to make your pool environment as safe as possible. Please read all of the safety information provided with your pool and follow the *swimming pool safety information* within this manual. Warning signs or notices supplied by the manufacturer MUST be posted or applied where they are visible to pool users. Remember our staff is available to help you with any questions or pool problems that may arise. We appreciate your business and have offered this interactive pool manual on DVD to help ensure your pool will operate smoothly, providing years of family fun & relaxation.

Throughout the Pool Manual you will notice hyperlinks by their blue, underlined text. When you click on this text you will open additional documentation (link) to view more information on that subject (all contained within this DVD). Click on the lower X in the right corner of the toolbar or the green back arrow at the bottom of the page to return to the previous page. If the hyperlink begins with a www. the link requires you to be on-line with a live internet connection established to go directly to the desired web-site. Each portion of the manual can be printed by page or in its entirety by clicking on File, Print in the upper toolbar. When printing be sure you have chosen the current page only or desired pages under page range or you may end up printing the entire manual. If you are looking for information on a certain topic, such as SHOCK, simply type that word in the search box listed in the Table of Contents and all information on that subject will be shown.

If you are experiencing technical difficulty operating this software please contact Pool Software directly for customer support: online at help@poolsoftware.com. For future upgrades and software support, please be sure to register your pool manual software on-line, by clicking on register at the main menu. We hope you find your Pool City pool manual to be a helpful resource in better understanding the basics of pool care, maintenance and water chemistry.

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We're proud to be the Pittsburgh's largest family-owned home leisure retailer. For years Pool City has supplied thousands of families with back-yard fun! In addition to offering the best selection and best prices on swimming pools and accessories we also offer the finest:

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WATER TESTING

Maintaining the water in your pool doesn't require a degree in chemistry. Test strips give accurate test results more quickly and easily than any other testing method. Swimming pool water has chemical characteristics which must be measured regularly. You will be testing your water at home 2-3 times per week for Sanitizer and pH, as these levels can quickly change.

When testing your pool water take a sample from approximately 12" below the water's surface and away from any return inlets. You can enter your test results into the computerized water analysis software within this manual, Test Water at the main menu, and receive accurate chemical recommendations and dosages to maintain balanced pool water.

Test Strips –provide quick and accurate results for a variety of water tests. A typical 3-way test strip will provide sanitizer (Free chlorine or biquanide), pH and Total Alkalinity readings. As with any test kit, there are several factors that can be controlled to insure the validity of the test results. Following are some guidelines for using test strips to obtain accurate water analysis results.

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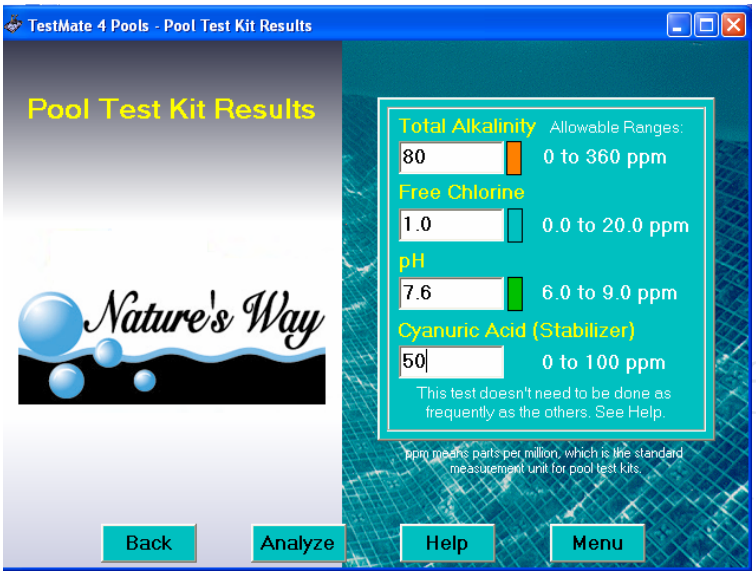
- **Follow the directions that came with the kit.** Sounds simple, doesn't it? However, there have been many cases where a user inadvertently used the directions that came with another manufacturer's strips or used directions from an older kit. Most inaccurate test results occur when individuals do not follow directions or follow the wrong directions! Test strips are continually improving and becoming more accurate, and you should never assume that the directions on one container are going to apply to another container's strips. In addition, not all manufacturers' test strips are the same, so it is essential to read and follow the directions on each container.
- **Store test strips in a low humidity environment at room temperature.** Test strips will be most effective over a long period of time if they are stored properly. Suitable storage will give you confidence in your results until the product has reached the date of expiration.
- **Keep the cap on tight between uses.** Doing this will prevent moisture from entering the bottle of unused strips. It is important that moisture not be introduced to the test strips until you use them in your pool or spa.
- **Keep wet fingers out of the bottle.** The test strips won't know the difference between the water on your fingers and the pool or spa water! So, make sure that the only water your test strips are reacting with is the pool or spa water you intend to measure.
- **Do not use expired test strips.** Most containers of test strips will display an expiration date somewhere on the container. Always be aware of this date when using or purchasing test strips. Regardless of how the container has been stored or handled, test strips have a definite shelf life and should not be used after the product has expired. Using test strips after this date will likely lead to inaccurate results. Therefore, replace any bottles that have expired.

WATER TESTING SOFTWARE

Your Nature's Way Pool City pool manual includes a water analysis testing program, TestMate 4 Pools™. As mentioned earlier it is a good idea to test your pool water at least two to three times a week. If the sanitizer, pH or alkalinity tests are not in the acceptable ranges you will want to go to the water testing button on the main menu. Here you will enter your test results and receive chemical recommendations with dosages to balance your pool water. Maintaining a consistent chemical routine is extremely important in keeping your pool clean, clear and healthy. Once you have started on a chemical program stick with it. Chemical brands can vary quite a bit and mixing different chemicals can be dangerous, *See Chemical Safety* for more information. If you follow our recommended chemical routine along with good pool maintenance (vacuuming and filtration) your pool will look great and be easy to maintain. TestMate will help you save time and money using only the chemicals you need, when you need them.



ALWAYS READ ALL CHEMICAL INSTRUCTIONS AND FOLLOW ALL MANUFACTURER RECOMMENDATIONS FOR SAFETY WHEN HANDLING AND STORING ANY CHEMICALS.

If you are experiencing any difficulty with the operation of this software please contact Pool Software at help@poolsoftware.com or by calling 800-899-7479. If you are having difficulty maintaining your pool or with the chemistry of your water please contact your Nature's Way dealer.

BASIC POOL WATER CHEMISTRY

Understanding the basics of pool water chemistry will help you to properly maintain your pool. Clean and healthy pool water is achieved through chemical treatment, water balance, good maintenance (cleaning and vacuuming) and proper circulation/filtration. All of these elements work together to provide sparkling clear water and a comfortable pool.

Chemicals used in swimming pools include: Disinfectants to destroy harmful or otherwise objectionable organisms; Alkalinity and pH Adjusters to maintain a consistent acid-base relationship and acid buffering capacity; Chlorine Stabilizer to prevent unnecessary loss of chlorine; Algaecide to kill and prevent algae, and Filter Aids to help remove foreign material. Most chemical brands offer weekly treatment programs that will include some or all of the chemicals mentioned above. Be sure to read and follow all manufacturers' instructions for the chemical treatment program recommended by your pool professional.

The following is a listing of recommended chemical levels

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TEST	**IDEAL**
pH	7.2-7.6
Total Alkalinity	80-120 ppm
Free Chlorine*	1.0-3.0 ppm
Combined Chlorine	0-.02 ppm
Cyanuric Acid (conditioner/stabilizer)	40-60 ppm

*If you are using a mineral sanitizer such as Nature 2® you can maintain a much lower chlorine level: 0.5 to 1.0 ppm

Sanitizers

Maintaining the proper level of sanitizer in your pool at all times is critical to the health and comfort of your pool water. To learn more about the different types of sanitizers and the desired levels you may click on the listing below:

CHLORINE ***NATURE² with CHLORINE***

pH 7.2-7.6

pH is the single most important element in swimming pool water chemistry. It affects every other chemical balance in pool water. pH is the measure of acid vs. base of a solution. The pH scale runs from 0 to 14 with 7.0 being the neutral point. It is important to maintain a ph reading between 7.2 to 7.6, ideally at 7.6, to ensure swimmer comfort, water balance and to maximize the effectiveness of your sanitizer. The type of sanitizer you use can affect your pH as will rain water and many other things, requiring you to test and adjust your pH on a regular basis.

Low pH

When the pH reading is low (below 7.2) your pool water is acidic. Acidic pool water can cause damage to plaster pool walls while corroding metal plumbing and metal components in heaters, pumps and filters. Low pH water also causes skin and eye irritation, making the eyes look red (a condition often mistaken for too much chlorine). You will also find a rapid loss of your chlorine residual and alkalinity when the pH is too low.

High pH

When your pH reading is too high (over 7.7) your pool water is too alkaline. This condition will often make your water hazy or dull and can cause scaling of your pool walls, plumbing and equipment. Your sanitizer becomes less effective-requiring you to use more while a High pH can also cause skin and eye irritation.

Adjusting pH

To avoid the problems listed above, **pH must be maintained between 7.2 and 7.6**. The most desirable level for pH is between 7.4 and 7.6. If you enter your pH test results into TestMate 4 Pools you will receive proper chemical recommendations with the dosages required to balance your pool. Be sure to follow the manufacturer's label recommendations for applying these chemicals and do not add any more than the recommended dosage per application. DO NOT make rapid changes in the pH or Total alkalinity or you may cause metals and minerals to precipitate and cause staining or scaling. You should gradually adjust the readings and allow the water to re-circulate then retest in 4 to 6 hours to determine if further treatment is necessary. If problems with low pH persist, it may be necessary to raise total alkalinity to stabilize the pH.

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Raising pH with pH Up

If pH is too low - raise pH by adding pH Up. Never add more than 2 lbs per 10,000 gallons in a single treatment. If pH is under 7.2, add this amount of pH Increaser, then retest.

	GALLONS IN POOL						
pH	**1,000**	**5,000**	**10,000**	**15,000**	**20,000**	**25,000**	**50,000**
7.2-7.4	2/3 oz.	3 oz.	6 oz.	9 oz.	12 oz.	1 lb.	2 lbs.
7.0-7.2	3/4 oz.	4 oz.	8 oz.	12 oz.	1 lb.	1 1/4 lbs.	2 1/2 lbs.
6.6-7.0	1 1/4 oz.	6 oz.	12 oz.	1 lb.	1 1/2 lbs.	2 lbs.	4 lbs.
Under 6.7	1 1/2 oz.	8 oz.	1 lb.	1 1/2 lbs.	2 lbs.	2 1/2 lbs	5 lbs

If pH is too high - lower by adding pH- You should gradually adjust the readings adding no more than 1 lb. per application, 2 ½ lb. per day.

Total Alkalinity 80-120 ppm

Total Alkalinity (T.A.) is a measurement of the concentration of alkaline minerals in your pool water that provide a pH buffering capacity (the water's ability to resist sudden changes in the pH). Although Total Alkalinity is not the same as pH it is instrumental in stabilizing the pH to prevent fluctuation. The ideal range to maintain your Total Alkalinity is 80-120 ppm.

When T.A. values fall below the recommended range, the pH is easily affected. Even a small amount of high or low pH material introduced into the water can result in large swings in pH values. Generally when T.A. is low, the pH remains low as well, causing your pool water to be corrosive and irritating to swimmers. At high T.A. levels, small additions of calcium can produce scale. The pH tends to remain high and attempts to lower pH are short lived.

Adjusting Total Alkalinity

When the Total Alkalinity of your pool is low (below 80ppm) you will need to raise it by adding a Alkalinity Plus. This chemical will raise the T.A. level while having a moderate effect on the pH level. Follow the manufacturer's recommendations for application by either broadcasting the chemical or pre-dissolving. Adjust readings gradually, DO NOT add more than 2 lb. sodium bicarbonate per application and do not raise more than 50 ppm at a time. Allow the water to re-circulate then retest in 4 to 6 hours to determine if further treatment is necessary.

Raising Alkalinity Using Alkalinity Plus

Increase	GALLONS IN POOL						
(ppm)	1,000	5,000	10,000	15,000	20,000	25,000	50,000
10	0.14 lbs	0.7 lbs.	1.4 lbs.	2.1 lbs.	2.8 lbs.	3.5 lbs.	7 lbs.
20	0.28 lbs.	1.4 lbs.	2.8 lbs.	4.2 lbs.	5.6 lbs.	7.0 lbs.	14 lbs.
30	0.42 lbs.	2.1 lbs.	4.2 lbs.	6.3 lbs.	8.4 lbs.	10.5 lbs.	21 lbs.
40	0.56 lbs.	2.8 lbs.	5.6 lbs.	8.4 lbs.	11.2 lbs.	14.0 lbs.	28 lbs.
50	0.70 lbs.	3.5 lbs.	7 lbs.	10.5 lbs	14.0 lbs.	17.5 lbs.	35 lbs.

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High Total Alkalinity levels (above 150 ppm) should be lowered by using pH Down. Follow all manufacturer's recommendations and adjust the readings gradually, adding no more than 1 lb. per application or 2 ½ lb. per day.

Lowering Alkalinity Using pH Down

Decrease	GALLONS IN POOL						
(ppm)	1,000	5,000	10,000	15,000	20,000	25,000	50,000
10	0.21 lbs.	1.06 lbs.	2.13 lbs.	3.19 lbs.	4.25 lbs.	5.31 lbs.	10.63 lbs.
20	0.43 lbs.	2.13 lbs.	4.25 lbs.	6.38 lbs.	8.50 lbs.	10.63 lbs.	21.25 lbs.
30	0.64 lbs.	3.19 lbs.	6.38 lbs.	9.56 lbs.	12.75 lbs.	15.94 lbs.	31.88 lbs.
40	0.85 lbs.	4.25 lbs.	8.50 lbs.	12.75 lbs.	17.00 lbs.	21.25 lbs.	42.50 lbs.
50	1.06 lbs.	5.31 lbs.	10.63 lbs.	15.94 lbs.	21.25 lbs.	26.56 lbs.	53.13 lbs.

METALS 0

There are various metallic substances that can be found in pool water (copper, iron, manganese, etc.) which can cause staining and discoloration in your pool. These substances can occur naturally from the water used to fill the pool or from metallic pool equipment parts if water has been acidic or corrosive. If you suspect metals or high mineral content in your pool water we recommend using *Nature's Way* Stain & Iron Control. See the *Staining and Scaling* section for more information.

SANITIZING YOUR POOL WITH CHLORINE

Chlorine is a natural element belonging to the halogen group of elements. Chlorine has long been the most popular sanitizer treatment for pools because of its ability to:

- Sanitize- *To kill all disease-causing organisms.*
- Disinfect- *To kill all living organisms.*
- Oxidize- *Destroy organic contaminants and swimmer waste.*

Free Chlorine 1.0-3.0ppm

Free (available) chlorine is the measure of chlorine's active disinfecting power. Organic material, bacteria and algae are regularly introduced into the swimming pool water-yet are not always visible by the naked eye. That is why it is important to maintain a Free Chlorine residual of 1-3 ppm to keep your water free of these micro-organisms. Be sure when testing your water that your test kit or strips are yielding Free Chlorine reading and NOT a Total Chlorine reading; see the following section for an explanation of Total Chlorine. If you are using a mineral sanitizer, such as Nature² ® , you can maintain a much lower chlorine residual of 0.5-1.0 ppm. *See Nature² for detailed instructions.*

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Adjusting Free Chlorine

TestMate 4 Pools can help you determine the amount of chlorine necessary (how and when to add) to maintain a free chlorine reading, this amount varies depending on your pool size and the type of chlorine being used. There are many factors that increase your pool's chlorine demand- (how quickly the free chlorine is used) some of which include: rain, heavy bather load and high heat. Once you have found the maintenance dosage of chlorine that works for you stick with it! This is the single most important factor in maintaining healthy pool water. Try not to let the Free chlorine residual drop below 1 ppm, if it does and your test shows 0 Free Chlorine residual you should "shock" the pool; see *Shocking or Superchlorination.*

Total Chlorine 0 to less than .02 ppm

Total Chlorine is a measurement of both the Free (available) chlorine and the combined chlorine (chloramines) in your pool. As mentioned earlier Free chlorine is the active sanitizer available to disinfect your water. Combined chlorine is formed when chlorine combines with organic compounds to form chloramines. This "used" or Combined chlorine has already done it's job and needs to be removed from the water or it can cause skin and eye irritation and the "chlorine-odor" that is often associated with too much chlorine in the pool. Actually at that point the pool needs more chlorine, not less- it is the Free chlorine that needs to be increased. See *Shocking or Superchlorination.*

Remember to follow all *Chemical Safety* precautions when handling, storing and applying chlorine to pool. Always add one chemical at a time, mixing two chemicals can be dangerous. Always add chemicals to water-never water to chemicals.

ROUTINE CHLORINATION

Our *Nature's Way* Chlorine program is easy to follow and will provide crystal clear water, when following our simple three step plan.

Step 1- SANITIZE- weekly using *Nature's Way* Small Chlorinating Tablets or Blue Jumbo Tabs, every other day, if using *Nature's Way* Granular Powder.

Step 2- OXIDIZE- shock weekly using *Nature's Way* Super Shock.

Step 3- PREVENT-inhibit algae weekly by adding a maintenance dose of *Nature's Way* Instant Pro Algicide.

Nature's Way Granular Powder

Our stabilized granular chlorine is protected from U.V. rays so it will provide steady sanitation for a 24 hour period. Our fast-dissolving formula is completely soluble with no calcium build-up. Will not cause clouding and has a more neutral pH than non-stabilized granular chlorine. CANNOT be used in a chlorinator. Remove skimmer basket and add 2-3 oz. per 10,000 gallons every other day into skimmer with pump and motor running.

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Nature's Way Small Chlorinating Tablets

Our stabilized 1in. diameter tablets dissolve slowly providing steady sanitation for use in a floating dispenser or automatic chlorinator. Fill dispenser or feeder with Small Tablets, adjust output as necessary to maintain a 1-3 ppm chlorine reading and check and refill every 3-5 days, or as needed.

Nature's Way Blue Jumbo Tabs

Our jumbo 3 in. diameter stabilized tablets provide slow dissolving steady sanitation for 5-7 days. Used in a floating dispenser or automatic chlorinator. Fill dispenser or feeder with Blue Jumbo Tabs, adjust output as necessary to maintain a 1-3 ppm chlorine reading and check and refill every 5-7 days, or as needed.

Because chlorine is a very strong oxidizer there are certain precautions you should follow when using, storing and handling this chemical. A few are listed below, see *Chemical Safety* for more detailed instructions.

- Always read and follow the manufacturer's instructions.
- Store chemicals in a cool, dry and shaded place.
- Never mix different types of chlorine– add each to the pool separately.
- Never mix chemicals together – add each to the pool separately.
- If pre-dissolving granular chlorine, **ALWAYS** add chlorine to water, not water to chlorine. Use a clean, dry bucket outdoors in a well-ventilated area.
- Avoid breathing fumes or vapors.
- Make sure pool chemicals are inaccessible to children

NATURE² VISION PRO

Nature² Vision Pro is the ultimate chlorine and mineral sanitizing system for aboveground pools up to 30,000 gallons. The Nature² Vision Pro system is an all-in-one mineral sanitizer and precision chlorine dispenser. Nature² patented technology delivers controlled trace amounts of beneficial minerals to help maintain a bacteria and algae-free pool. Combining those benefits with an automatic chlorine delivery system using our exclusive Nature's Way Z-Pack, Nature² Vision Pro delivers water that is noticeably cleaner, clearer and softer. No other system is this complete or easy to install, use and maintain. With Nature² you can reduce chlorine use by 50-80% by maintaining a low level of 0.5 ppm- 1.0 ppm Free Chlorine.

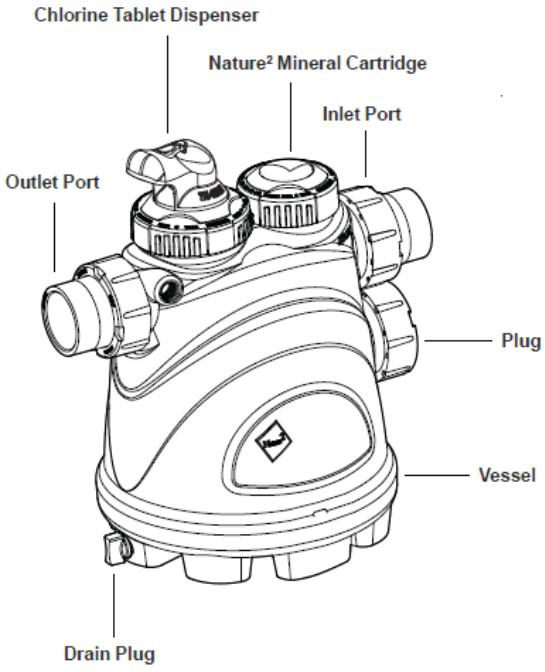
Under normal conditions, the large-capacity chlorine dispenser of the Nature² Vision Pro provides a minimum of one month chlorination for most pools. Remember your VISION PRO system is designed to use a Nature's Way Z-Pak chlorine cartridge. Z-Pak's eliminate the need to handle chlorine, providing a convenient pre-measured cartridge that you simply replace as needed, approximately every 4 to 6 weeks. DO NOT attempt to refill the cartridge with chlorine, simply discard when empty and replace with a new Z-Pak. The chlorine feed rate can easily be controlled by adjusting the chlorine regulator dial to control the rate of water flow through the chlorine chamber.

The mineral cartridge for the Nature² Vision Pro lasts one pool season (six months) and should be replaced every spring. with a Vision Pro mineral cartridge from your Nature's Way Dealer part # 50001900.

On initial start-up and each spring, you need to insert a new mineral cartridge and Z-Pak chlorine cartridge. To activate the mineral cartridge you need to shock the pool by adding 1 lb. of Nature's Way Super Shock per 10,000 gallons of water, see *Shock*. Run the circulating pump either 24 hours for four days, or six hours a day for 14 days while maintaining 1 - 3 ppm of free available chlorine. After the initial start-up you can lower the chlorine output setting and allow the chlorine level to gradually decrease to 0.5- 1.0 ppm. See manual below for complete instructions.

CAUTION

- Only use *Nature's Way* Z-Pak Chlorine Cartridge (Trichloro-S-Triazinetrione) DO NOT try to refill.
- NEVER MIX with other types of chlorine or chemicals. Explosion or fire may result.
- NEVER open chlorine dispenser when pump is running.
- Always shut off pump and available valves before opening.
- To prevent build up of gas in chlorinator, be sure pool return line valve is kept open - except when opening/servicing unit.



Nature² Vision Pro Installation & Operation Manual

Nature² Vision Pro Mineral Cartridge Owner's Manual

SHOCKING or SUPERCHLORINATION

When you shock your pool you use the process of oxidation to chemically remove (burn up) organic debris, such as body waste, particulate matter and perspiration, from the water. All pools require a shock treatment on a regular basis to maintain optimum water quality.
If you are using chlorine only to maintain your pool, routine shocking the water every 1 to 2 weeks will greatly increase the water quality of your pool. In addition to oxidizing undesired wastes – shocking will help rid the pool of algae and bacteria that might be hiding in filters and hard-to-sanitize areas. Pools using a Nature² system do not need to routinely shock, but should shock as needed; at the first signs of cloudy water or when the pool is heavily used.

Contrary to what most people think, a strong chlorine smell is not an indication of too much chlorine in the pool but actually a red flag that a super dose may be required to correct the problem. In chlorine treated pools shocking can be achieved by superchlorination (adding a much higher chlorine amount than normal). Hypochlorous acid is the form of chlorine that provides sanitation. Hypochlorous acid is very active and will react with ammonia and other nitrogen-containing organic compounds (i.e., perspiration, urine, etc.) and form chloramines. This "combined chlorine" is 40 to 60 times less effective than free available chlorine. Combined chlorine, in addition to reduced effectiveness against bacteria can cause eye irritation and so called "chlorine odor." This may also result in a dull or flat look to your pool. A properly balanced and chlorinated pool will have no discernible odor.

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WHEN TO SHOCK *Pools using a Nature² sanitizer on their pool do not need to routinely shock weekly, but should shock as needed; at the first signs of cloudy water or when the pool is heavily used.*

Every 2 Weeks:	When the temperatures are 80° F or below
Weekly:	When the temperatures are above 80° F Heavy bather load (after the pool party!)
As Needed:	At the first signs of visible algae (slippery walls or floor) Cloudy water (check water balance as well) Heavy rains or storms (increase organic debris in water)

It is most effective to shock in the evening as chlorine shock dissipates very rapidly in sunlight.

When using *Nature's Way* Super Shock you may experience a very high chlorine reading (10 ppm or higher). You must allow the Free Chlorine level to drop back down to a safe range of 3 ppm or lower before re-entering the pool. This could take up to 24 hours, so plan according when superchlorinating or use *Nature's Way* Oxy Shock if the pool will need to be in use sooner.

WHAT TO USE

Nature's Way **Super Shock** our concentrated formula allows you to add 1 lb per 16,500 gallons of pool water. DO NOT store partial bags, round up if needed when dosing and use a full bag.

Nature's Way **Oxy Shock doses** at a rate of 1 lb per 10,000 gallons of water. Oxy Shock is a non-chlorine shock that can be added directly to the pool without pre-dissolving and allows you to resume swimming in 15 minutes. This is a very convenient method of shocking and is an excellent choice for water clarity issues. It is NOT, however, the best choice for algae treatment as will oxidize but not sanitize (kill disease) in the water.

The chemicals used for shock treatments are powerful oxidizers. CAREFULLY read and follow the recommendations in the *Chemical Safety-oxidizers* section.

SPECIALTY CHEMICALS

There are many specialty chemical products available today to treat a wide range of water problems. Your *Nature's Way* dealer will assist you in choosing the specialty chemicals best suited for your particular water problem.

Algae Treatment -Algaecides
Specific algaecides are designed to treat different types of algae. To learn more go to the *Algae* section of this manual. Please read the phosphate treatment section below.

Chelating or sequestering agents
Nature's Way Stain & Iron Control can be used to prevent staining or scaling by binding metals or minerals in pool water together so they will not precipitate (fall out of solution). Often called stain or scale remover or inhibitor these products work best to prevent discoloration PRIOR to the use of any chemicals. *See Staining and Scaling*

Clarifiers

Nature's Way 5 'n 1 Clarifier helps filter out suspended particles that cannot be oxidized. Made of Polyelectrolyte, clarifiers use the art of attraction to coagulate or bind small particles together making them large enough to be trapped by the filter. Be sure to read and follow the bottle's instruction label for application instructions. *See Cloudy Water for more information.*

Enzyme Products Provide a natural method for combating organic matter in your pool water. Pools with heavy use or large amounts of organic material (sun-tan oils, cosmetics, body oils & wastes, leaves, worms) will benefit greatly from a weekly addition of Natural Chemistry's Pool Perfect®. Pool Perfect will reduce foaming and scum-lines, increase water clarity and decrease backwashing frequency. *Click here to learn more about Pool Perfect.*

Phosphate Treatment Phosphates are a primary nutrient for algae- by removing the food source pool water becomes much less inviting for algae growth. A well maintained pool with proper sanitizer levels should not experience algae problems, but the higher the phosphate level goes, the more algae flourishes and the more resistant it becomes. In most cases phosphates enter the pool in the fill water, which runs from 100 parts per billion (ppb) to more than 1,000 ppb (many water districts add phosphates to their water to inhibit corrosion). Other sources include rain water, fertilizers, some pool chemicals, and organic debris (like bark or leaves). In other words, phosphates are always entering a pool. If you experience frequent algae problems consider using Natural Chemistry's PHOSfree. *Click here to learn more about PHOSfree*

Tile & Vinyl Cleaner.
Use *Nature's Way* Tile & Vinyl Cleaner on a routine basis, to clean the waterline of the pool and prevent a scum-line or "bath-tub ring" from forming.

CAUTION: When using any chemical you should always read the label directions for usage and handling instructions. Follow all safety guidelines on the bottle as well as the *Chemical Safety* recommendations found within this manual.

CHEMICAL SAFETY

Handling swimming pool chemicals is safe and easy when they are used and stored properly. Problems occur when careless mistakes are made. By following some easy safety rules, accidents can be prevented. In addition to the recommendations listed below be certain to read and follow the directions on the bottle label.

1. FOLLOW INSTRUCTIONS: MIX CHEMICALS ONLY AS INSTRUCTED.

2. NEVER add water to chemicals—add chemicals to water slowly.

3. ALWAYS use the exact dosage specified on the label by the manufacturer.

4. PROTECT eyes with glasses or a mask when handling chemicals.

5. ALWAYS open product containers in a well-ventilated area.

6. NEVER mix different chemicals together. This can produce a chemical reaction that can lead to a fire, toxic fumes or explosion.

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7. ALWAYS use a clean dipper, free of oil, grease, or insecticides. Even a small amount of residue can combine with the chemicals and produce a danger.

8. ALWAYS keep chemicals in their original containers, tightly sealed.

9. STORE your chemicals in a clean, dry, well-ventilated area **away from** household items such as fertilizer, gasoline, oil, or other cleaning solutions.

10. NEVER store any liquid products directly over or directly next to dry pool products (chlorine tablets or shock, balancers, etc.).

11. KEEP liquid acid (muriatic) and liquid chlorine products away from each other and away from all shock products and chlorine-based products.

12. SEPARATE your pool care products from each other when storing, using spacing as a buffer zone between chemicals.

13. CAREFULLY read the active ingredient section on the front of the product label to determine what acids, balance chemicals, or oxidizers it contains.

14. ALWAYS clean up spills immediately with a clean broom or dust pan. Dispose of spilled materials in clean container. DO NOT PUT SPILLED CHEMICALS BACK IN THEIR ORIGINAL CONTAINER. The chemical may have been contaminated.
15. REMEMBER to rinse plastic dispensing containers with water after use.

16. KEEP chemicals away from electrical equipment and open flames.

17. NEVER FLUSH excessive amounts of chemicals down storm sewers. In case of large spills, contact your local fire department for assistance.

18. ALWAYS wash hands thoroughly after handling chemicals.

ACIDS AND OXIDIZERS SAFETY

Acids- highly corrosive substances and must be handled with extreme care. Muriatic acid (Hydrochloric acid) and Sodium bisulfate are acids most commonly used in the care of pools.

Protective Equipment
- Eyes-goggles or full face shield when splashing may occur
- Hands-gloves (rubber, neoprene, or PVC)
- Body-coveralls and impervious boots
- Lungs-proper ventilation

Handling Precautions
- DO NOT take internally
- Avoid contact with eyes, skin or clothing
- Upon contact with skin or eyes, rinse with water
- Avoid breathing vapor (muriatic acid) and dust (sodium bisulfate)
- Store all containers in a cool, dry place
- *Always add acids to plenty of water…Never add water to acids*

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Conditions and Materials to Avoid
- Avoid contact with strong alkalies such as caustic soda, sodium carbonate, etc
- Avoid contact with all oxidizers
- Do not store in wet or moist conditions

Balance Chemicals- Although acids are balance chemicals, they have be treated separately. The balance chemicals Sodium bicarbonate, Sodium carbonate, and Calcium chloride are all basic (high pH) and increase pH, TA and Calcium Hardness.

Protective Equipment
- Eyes-goggles
- Hands-gloves (rubber, neoprene, or PVC)

Handling Precautions
- DO NOT take internally
- Avoid contact with eyes, skin or clothing
- Avoid breathing dust, spray or mist
- Store containers in a cool, dry place
- Always keep containers tightly sealed
- *Caution: DO NOT MIX balancing chemicals with anything other than water*

Conditions and Materials to Avoid
- Avoid contact with acids
- Avoid contact with organics and oxidizers
- Do not store near acids

Oxidizers- The precautions for oxidizers are important in handling the following: Calcium hypochlorite, Lithium hypochlorite, Sodium hypochlorite (Liquid shock, Bleach), Trichlor, Sodium dichlor, Bromine, Potassium peroxymonosulfate (Oxy shock, Non-chlorine shock).

Protective Equipment
- Eyes-goggles
- Hands-gloves (rubber, neoprene, or PVC)
- Lungs-provide ventilation where dust is likely

Handling Precautions
- DO NOT take internally
- Avoid contact with eyes, skin or clothing
- Upon contact with skin or eyes, rinse with water
- Avoid breathing dust
- Store all containers in a cool, dry place
- Do not store containers in direct sun light
- Do not store near combustible materials
- Do not mix oxidizers
- Use clean, dry utensils when handling oxidizers
- Keep all oxidizer containers off wet floors

Conditions and Material to Avoid
- Excessive heat—oxidizers will decompose, releasing toxic gasses and heat
- Solvents
- Acids
- Other pool chemicals such as acids, algaecides, clarifiers, sequestering agents, surface cleaners, etc.
- Organic materials
- *Do not mix chemicals with anything other than pool water. Always add chemicals to plenty of water. Never add water to chemicals.*

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PoolPal™

ALGAE

Algae are microscopic plant life. There are many types of algae, yellow, green, brown, or black; thousands of species of algae exist. Green algae are the most common type and the easiest to get rid of. Green algae can appear in patches or create an all-over cloudy green shade of water. Pink slimy algae are actually not algae but fungus bacteria, often appearing as streaks or spots in corners and crevices. See *Water Mold or Pink Slime* for details and treatment. Mustard algae prefer shady areas like pool step corners, along the walls and under the pool lights, ladders or other fixtures. Black algae often appear as dark colored spots on the walls or floor. Temperature, sunlight, pH, sanitizer level and the presence of carbon dioxide, phosphates and nitrates all affect the presence and growth rate of algae. Algae can be introduced into the pool by rain or wind, leaves and organic material, even fill water. In early stages of algae infestation you may notice the water circulation slowing as the filter is removing algae spores, the filter pressure builds and the return flow decreases.

Prevention

In all cases it is much easier and better to prevent the growth of algae than to cure it. To prevent algae from growing in the first place requires regular pool maintenance, proper circulation and filtration; keeping the pH and free chlorine residual or other sanitizer at the proper level, keeping the pool clean and vacuumed, weekly shocking and adding a maintenance algaecide, algistat or specialty chemical to help prevent algae growth. While proper sanitizer levels will prevent most algae growth there are some strains that are resistant to chlorine and other sanitizers. That is why it is a good idea to regularly add a maintenance dose of *Nature's Way* **Instant Pro Algicide** as part of your routine chemical program.

There are a variety of specialty chemicals available today, such as phosphate removers, that are effective in preventing algae growth. If algae is a recurring problem, you should consider treating your pool with Natural Chemistry's PHOSfree. *Click here to learn more about PHOSfree*

Treatment

Algaecides kill algae working hand in hand with your sanitizer to help control and prevent algae growth. There are many different types of algaecides available; some are made to specifically fight certain types of algae. *Nature's Way* **Instant Pro Algicide** is effective both in prevention and killing of green, as well as many other types of algae.
Nature's Way **Black Algae Destroyer** and *Nature's Way* **Black Mustard Algaecide** are recommended for killing stubborn algae such as black and mustard algae.

Green Algae

1. Remove solar cover and discontinue use during treatment of active algae growth.
2. Check pH and adjust if necessary.
3. Shock pool using *Nature's Way* **Super Shock.** Broadcast 1 lb per 16,500 gallons water.
4. Pour *Nature's Way* **Instant Pro Algicide** directly into the water near or over the visible algae growth, following dosage instructions on bottle label.
5. Increase filter run time to 24 hours if possible to increase circulation.
6. The following day, brush and vacuum affected areas.
7. Check filter pressure gauge and backwash if necessary.
8. Continue to maintain your sanitizer level at the high side of normal (free chlorine of 3.0) during treatment for algae infestation.
9. Continue to brush walls and vacuum, clean filter as necessary and add maintenance algaecide until pool is clear of all signs of visible algae.

Black Algae

Some types of algae, especially black algae, are very stubborn and require special treatment. Black algae form a protective coating which makes it highly impervious to shock treatments and algaecide. The best treatment for black algae is to scrub the affected areas or spots prior to chemical treatment so the shock and algaecide will have an opportunity to penetrate the algae spores.

1. Remove solar cover and discontinue use during treatment of active algae growth.
2. Vigorously scrub algae spots with a maintenance or algae brush
3. Check pH and adjust if necessary.
4. Shock pool using *Nature's Way* **Super Shock.** Broadcast 1 lb per 16,500 gallons of water.
5. Pour *Nature's Way* **Black Algae Destroyer** directly into the water near or over the visible algae growth, following dosage instructions on bottle label.
6. Increase filter run time to 24 hours if possible to increase circulation.
7. The following day, brush and vacuum affected areas again.
8. Check filter pressure gauge and backwash if necessary.
9. Continue to maintain your sanitizer level at the high side of normal (free chlorine of 3.0) during treatment for algae infestation.
10. Continue to brush walls and vacuum, clean filter as necessary and add maintenance algaecide until pool is clear of all signs of visible algae.
11. After fighting a stubborn algae problem such as black or mustard algae it is recommended that you thoroughly clean your filter media, brushes, vacuum head and hoses. If algae spores remain in any of these areas they can re-infest the pool.

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Mustard Algae

This type of algae brushes off very easily, in fact too easily. It is NOT, however, an easy form of algae to get rid of. When brushing the mustard algae tend to just spread throughout the pool. There are a variety of algaecides made specifically to combat mustard algae- use the type recommended by your pool professional along with aggressively shocking your pool, as mustard algae is resistant to normal chlorine levels.

1. Remove solar cover and discontinue use during treatment of active algae growth.
2. Check pH and adjust if necessary.
3. Shock pool using *Nature's Way* **Super Shock.** Broadcast 1 lb per 16,500 gallons of water.
4. Use *Nature's Way* **Black Mustard Algaecide** following dosage and application instructions on bottle label.
5. Increase filter run time to 24 hours if possible to increase circulation.
6. Check filter pressure and backwash if necessary.
7. Continue to maintain your sanitizer level at the high side of normal (free chlorine of 3.0) during treatment for algae infestation.
8. Clean filter as necessary and continue to add a maintenance algaecide until pool is clear of all signs of visible algae.

After fighting a stubborn algae problem such as black or mustard algae it is recommended that you thoroughly clean your filter media, brushes, vacuum head and hoses. If algae spores remain in any of these areas they can re-infest the pool.

CLOUDY WATER

Cloudy water can be caused by a number of conditions, check in the following order:

- Insufficient filtration- Make sure your filter is clean and functioning properly. Perhaps your filter is due for a more thorough cleaning than backwashing alone will provide ask your *Nature's Way* dealer about a filter cleaner (see filtration). Has your pool been circulating a minimum of 8-12 hours a day, up to 24 hours a day? Be sure to allow your filter to run continuously, 24 hours a day, until your water clears.

- Unbalanced Water- High ph (above 7.8), high Total Alkalinity (above 150), high Calcium Hardness (above 400) are all capable of causing cloudy water. Test your water and enter the results under Water Analysis to determine if you need to make adjustments and balance your water.

- Low Sanitizer level- Sanitizers can be consumed rapidly, especially in high heat and heavy bather loads. A low sanitizer residual can also allow for algae growth, which in the early stages can appear as cloudy water. Add a dose of your maintenance sanitizer and shock your pool. Shocking your pool with *Nature's Way* Oxy Shock at a rate of 1 lb. per 10,000 gallons will oxidize any contaminants without adding calcium, found in granular chlorine, which can add to the cloudiness.

TREATMENT

After running your clean filter, balancing and shocking your pool water you may still find the need to add a clarifer. Clarifiers help filter out suspended particles that cannot be oxidized. Made of Polyelectrolyte, clarifiers use the art of attraction to bind small particles together making them large enough to be trapped by the filter. Use *Nature's Way* 5 'n 1 Clarifier following label directions for dosage and application instructions.

In extreme cases of cloudy water you may wish to consider *Nature's Way* Super Floc. Super Floc is aluminum sulfate, commonly known as "alum." It is used as a coagulant and a settling agent for turbid water. Alum floc is a white, gelatinous substance that attaches to free floating matter in the water to form larger, heavier-than-water particles, that settle to the bottom of the pool. Floc requires a higher than normal pH, above 8.2, to be effective. You will need to add pH increaser to raise the pH prior to treatment. Read the label directions carefully and broadcast the dry white powder over the surface of the water at a rate of 2 ounces per square foot of pool surface area and allow the pool to stand undisturbed overnight, up to 24 hours. After the debris has settled to the bottom, vacuum the pool on the waste or drain cycle (see filtration) to rid the pool of the unwanted matter. This will mean water loss, so carefully consider this option prior to treatment.

STAINING AND SCALING

All water contains some levels of minerals and metals. When the minerals or metals are dissolved and in suspension they are not visible. If they precipitate, or fall out of suspension, staining or scaling can result. Metals such as copper, iron or manganese in sufficient quantities can all cause staining. Prior to treating a stain you must first determine the cause. Algae or bacteria can cause green, black, yellow, brown or pink discoloration. These organic deposits can generally be distinguished from mineral or metal staining by their response to chemical treatments (sanitizer and algaecide) and in most cases can be removed with a vigorous brushing (although they may grow back), see *Algae* for more information. Leaves, worms and other organic material left in the pool can also cause staining. This type of staining will usually respond to a sanitizer and a follow up stain remover.

Ruling out the above, one can assume that the discoloration, throughout the water or in deposits, is caused by metals or minerals that have oxidized or dissolved and have precipitated (come out of solution). Unbalanced pH, Alkalinity and the addition of sanitizers are all possible causes for such precipitation. High levels of metallic salts such as calcium or magnesium in suspension may cause cloudy water, when they form hard white deposits or crystals on the pool surface it is referred to as scaling. Heavy metals like copper and iron will cause discoloration or when deposited, staining. Green usually indicates copper or iron, red and brown –iron, black or brown -manganese.

As with all water problems, prevention is preferred to treatment. The best way to prevent staining is to add *Nature's Way* Stain & Iron Control **PRIOR** to the addition of ANY pool chemicals. Often the original source water that you use to fill your pool may contain iron or other metals or minerals that are not visible to the naked eye. If a test reveals the presence of metals or minerals in your water you should add *Nature's Way* Stain & Iron Control according to label directions. Stain & Iron Control is used to help bind the metals together so they will not precipitate. Some pool water will require regular additions of these chemicals, especially after the addition of make-up water.

Another key in preventing precipitation is to follow the chemical guidelines for adjusting pH and alkalinity, high, rapid fluctuations can cause precipitation. Corrosion of metal equipment components due to unbalanced pH and Alkalinity can also cause dissolved metals to precipitate in the water.

PREVENT STAINING AND SCALING

- Follow water balance guidelines for pH, Total Alkalinity, TDS and Calcium Hardness. Add pH and Total Alkalinity adjusters following the application directions closely. **DO NOT** add too much chemical or make too rapid of an adjustment in a short period of time or precipitation can result.
- Routine maintenance dosages of *Nature's Way* Stain & Iron Control will help prevent staining and scaling.
- Poor filtration or circulation will accelerate metal precipitation.

WATER MOLD OR PINK SLIME

Pink slime or pink algae are actually not algae but a bacteria or fungus, often appearing as streaks or spots in corners and crevices. Sometimes it appears as a pink or orange colored ring around the skimmer or waterline. Water mold may have different appearances. It may appear as raised white spots or as sheet-like growth on the pool's surface. It will have a slippery feel and may appear as different colors. Water mold is caused by the build-up of a slime coating produced by microorganisms on exposed surfaces. These microorganisms are constantly introduced into the environment and will begin to grow when conditions become favorable (that is, low sanitizer, poor house keeping, etc.). The film that is generated as these organisms grow makes them particularly difficult to treat as the slime that results affords the organisms(s) protection from the sanitizer. Water mold is nonpathogenic (does not cause disease) and, like algae, your pool can be sanitized and safe to swim in with water mold present. Also like algae, water mold originates from the environment around your pool. One common way of introducing water mold into a pool is by placing a pool cover on the ground where it comes in contact with soil that contains the mold. When the cover is placed on the pool, the mold is introduced into the pool. It is always best to fold a cover and drape it over a chair or railing. Cold may slow its growth but will not kill water mold.

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Regular brushing and vacuuming usually keeps water mold and pink slime from growing in your pool. But there are places in a pool where proper attention is not always given such as behind lights, under ladder treads, nooks and crannies, a dirty filter, etc. Poor circulation is probably the biggest culprit. Water mold likes to grow in "dead spots." These are places that water does not readily circulate to and therefore the water becomes stagnant.

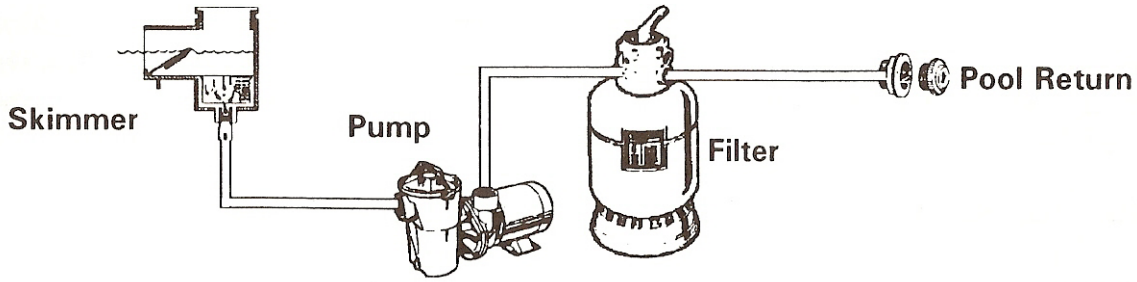
TREATMENT

The best overall treatment for Pink Slime or water mold is to vigorously brush the affected areas, shock the pool and add a recommended bacteriostat algaecide such as a silver based algaecide (regular maintenance algaecides may not be effective on pink slime or water mold).

1. Vigorously scrub affected areas with a maintenance or algae brush. Brush all surfaces very carefully, including the underside of ladder treads and skimmer faces behind pool lights, etc. Pink slime, in particular, has a gel-like protective coating that resists casual brushing.
2. Check pH and adjust if necessary, to achieve a 7.2 to 7.8 reading.
3. Shock pool (superchlorinate) using Super Shock at a rate of 1 lb. per 16,500 gallons.
4. Use Nature's Way Black Mustard Algaecide, following label recommendations.

CIRCULATION

Clean, clear, healthy pool water is achieved through proper water chemistry, sanitation and circulation. Circulation occurs as water travels into the skimmer passes through the plumbing to the pump, is filtered and returned via the return inlet of the pool. The pump must be on for the water movement to take place; which should be a minimum run time of 8 hours every day on high speed, 24 hours a day on low speed. Moving water allows your sanitizer to work more effectively, helps prevent dirt build-up and algae and allows your filter to effectively remove dirt and debris.



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The skimmer body contains a basket for catching leaves and debris before they enter the pump and possibly clog the impeller area. You should check the basket regularly (every few days) and empty as needed. If your basket becomes cracked it should replaced. There are many styles and sizes of skimmers available, be sure to save yourself an extra trip by bringing your old skimmer basket with you. The skimmer "skims" the water surface by pulling surface debris from the water. Your skimmer will work most effectively when the water level is ½ to 2/3 up on the skimmer opening and the weir door is in place. This door flaps in and out of the skimmer opening -drawing floating debris into the skimmer. The door simply snaps into place in the skimmer mouth and should at all times move freely to allow unrestricted water flow into the skimmer. Check and maintain your water level often and add make-up water if needed. If the water level drops below the skimmer the pump will draw in air and cavitate, potentially causing serious damage to the pump and motor by allowing it to run dry. Manual vacuuming is performed through the skimmer. Go to Vacuuming section of the manual for detailed instructions.

weir door

After the pool water passes through the filter tank it is returned ot the pool via the return inlet fitting. Most return fittings have a directional eyeball fitting to direct the flow of water back into the pool. For best results, the eyeball should be positioned so that the water is forced in a circular motion towards the pool bottom. This will promote more even circulation and result in a cleaner pool.

return inlet

PUMP & MOTOR

Water circulation is one of the most important elements of your pool. Adequate movement (or turnover) of water ensures clean and healthy pool water. Circulation begins as water flows through the in-wall skimmer, through the attached hose into the pump, through the filter then back to the pool. Your pump and motor should operate a minimum 8 hours every day to circulate and filter the pool water. 2-speed pump and motors are designed to run continuously at a low-speed with reduced electrical cost. Timers provide a consistent and reliable method of regular circulation with programmed run-times for your pump and motor.

Your pump has a suction side and a discharge side. The pump housing holds an impeller that pushes water to the discharge side of the pump, where it then flows through the filter for cleaning and then it goes back to the pool through the return fitting. Most pumps have a lint strainer where the water enters the pump. The pump strainer basket is usually positioned under a clear lid, so you can literally see if it contains any debris. You will have to check the pump basket regularly and clean it out with a hose. The lid on the lint strainer holds an o-ring that must be lubricated with an o-ring lubricant from time to time to ensure a good water tight seal. (do not use vaseline® on o-rings as the petroleum can break down the rubber)

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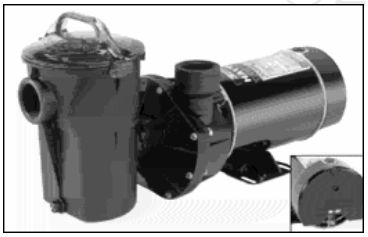

Your pump will have (1) or (2) ¼" drain plug(s) threaded into the lint pot and or pump housing; the drain plug is used to drain water out of the pump for winterizing. If your plugs come with o-rings you should keep them lubricated to keep air from entering the pump and losing prime.

Priming your pump (removing air and filling with water) may need to be done manually. Most above ground pumps are not self priming and occasionally inground self priming pumps may still need to be primed. At times the pump will lose its prime if the pump is higher than the water level in the pool, if it has been winterized or after cleaning your pump basket. If you need to prime your pump use the following steps:

- ✓ Check water level in the pool is at the half-way point on the skimmer.
- ✓ Check the skimmer basket –empty if needed.
- ✓ Make sure the drain plugs are installed in the pump.
- ✓ Check that any valves leading to pump are in the open position
- ✓ Remove the lid from the lint strainer at front of pump.
- ✓ Take a garden hose and put it into the pump housing. Fill the pump housing, which should automatically fill the suction line.
- ✓ When water flows out of the pump housing remove the hose.
- ✓ Put the lid back on the pump over the basket area. Check the lid O-ring is in place so that no air gets into the pump housing.
- ✓ Quickly turn "on" the power to the pump.

Watch the lid on the pump and see if the water has started to fill, this should take a minute or less, if after a minute you don't see water and the clear lid is starting to fog up, then turn "off" your pump and repeat the above steps.

The motor is what powers the pump to circulate water. The motor is the electrical side of the pump; it is located opposite of the pump housing. Most above ground pump & motors have 110v electrical plugs. They should always be plugged into a GFCI receptacle. You should NOT run the motor off of extension cords as this is an electrical hazard and is also detrimental to the motor itself. Inground Pumps can be 110v or 220v and are generally hard wired.

Click on your pump & motor model listed below to view a complete operating manual

- **EP Series**
- **Power-Flo® Matrix™ Series**
- **PowerFlo LX 1500 Series**
- **SwimPro Series**
- **Hayward Microprocessor Timer**

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If you do not see your pool pump listed above please refer to the printed instructions that came with your system.

FILTRATION

Adequate filtration is the one of the most important elements of your pool. Chemicals alone do not keep the pool water clean. It is the combination of chemicals, circulation and filtration that keeps your pool water clean and clear. The importance of proper filtration cannot be overemphasized in the overall program of sound pool maintenance and sanitary water. Proper circulation and filtration of the water is one of the best defenses against algae formation and cloudiness. The filter system comprises the complete filter and pump and motor. The filter is passive and requires the pump and motor to pass water through it for cleaning.

Cartridge

Diatomaceous Earth

Sand

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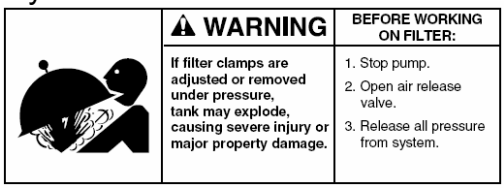
There are three basic types of filter systems: Sand, Cartridge (Element) and Diatomaceous Earth (D.E.). Each system has certain advantages as they all differ slightly in operation and the type of media that actually filters the particles (media refers to the actual sand, cartridge or D.E. inside of the filter tank). There are certainly pro's and con's to each type, although all of the filters are quite capable of providing excellent results with proper instruction and maintenance. Your Pool City professional will assist you in selecting a filter type.

Circulation begins as water flows through the in-wall skimmer and drain (optional) into the pump & motor. It then is pushed into the filter tank where dirt and debris are trapped in the filter medium. Clean water then exits the tank through a return hose or plumbing to the pool through the return inlet(s). Regardless of the type of filter system you have you should operate your system 8 to 12 hours per day. As dirt and debris accumulate within the medium of the filter tank the pressure gauge on the tank will begin to rise and the return flow of water going back to the pool will simultaneously diminish. When the pressure gauge increases 10 psi above the normal starting pressure it is then time to backwash the filter. Refer to the operating instructions for each system type on the pages to follow. Be certain to read and follow all manufacturers' instructions on operation and winterizing prior to start-up.

CARTRIDGE FILTERS

Cartridge filters consist of a tank that contains 1 or more pleated elements or cartridges where dirt and debris of 25-100 microns in size are trapped within the pleats. Minimal maintenance and less water loss than filters requiring backwashing are advantages unique to the cartridge filter. Cartridge filters do not require backwashing but the cartridge element itself is removed and cleaned, generally every 6 months or 1 to 2 times per season. Cartridge filters utilize the debris they collect as an aid to improve filtration. As a result, cleaning too often does not allow the filter to work at optimum filtration efficiency, while not cleaning often enough will shorten the life of a cartridge element. When the pressure gauge rises 8-10 psi above the "normal" or starting reading you should follow the steps below to remove and clean the cartridge element or follow the manufacturer's instructions provided with your filter.


WARNING
If filter clamps are adjusted or removed under pressure, tank may explode, causing severe injury or major property damage.
BEFORE WORKING ON FILTER:
1. Stop pump.
2. Open air release valve.
3. Release all pressure from system.

1. Shut off pump & motor.
2. **IMPORTANT** Release pressure in the tank by loosening the air relief bleeder valve.
3. Remove filter top or lid.
4. Remove cartridge element and thoroughly hose element top to bottom holding the nozzle at a 45 degree angle, and wash all the pleats with emphasis between pleats using a high-pressure hose.
5. Clean cartridge using *Nature's Way* Filter Wash-X
6. Rinse cartridge element and replace in tank.
7. Replace filter top and secure lock ring.

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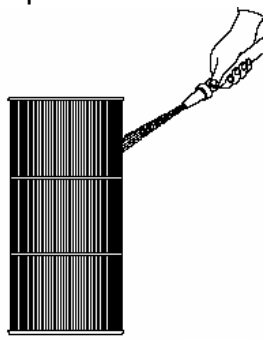
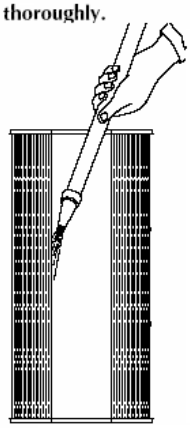


Hose down elements thoroughly.



Clean inside as well as outside of elements.

Cartridge elements should generally be replaced every 1 to 2 years. When cleaning the cartridge no longer provides a decrease in pressure and increased return flow it may be time to replace the cartridge element. Refer to your operating manual (linked below) for detailed instructions on cleaning, maintenance and winterizing of your cartridge filter.

Click on your filter model below for the complete operating manual

Easy Clear C55 sq. ft. Operating Manual

Star Clear C100 sq. ft. Operating Manual

SwimPro Missle Filter Operating Manual

SwimPro Voyager Operating Manual
100 sq. ft. 150 sq. ft 175 sq. ft. 200 sq. ft.

DIATOMACEOUS EARTH (D.E.) FILTERS

Diatomaceous Earth (DE) is a fossil material ground into a very fine white powder. DE filters contain internal elements (tubes) inside. The DE powder coats the internal element. Water passes through the DE coated element which strains dirt, algae and some forms of bacteria from the water. DE filters will trap the finest particle of the 3 filter types but this also means that the filter needs to be cleaned more often. When the filter pressure gauge reads 10 psi over the starting pressure the filter should be bumped or regenerated following the instructions below. When regeneration process no longer lowers the pressure (after 1 or 2 cycles) you will need to clean the filter of the old DE and dirt that has collected inside of the filter. Adding new DE called "charging" the filter is done on initial start-up and after cleaning or backwashing. The amount of D.E. used to charge your filter can be found in your filter owner's manual and often on the filter tank itself.

ALWAYS open the air bleeder valve each time you are starting up your system to relieve pressure in the tank and rid the system of air.

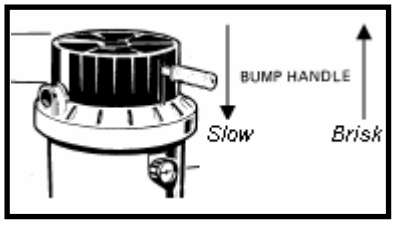
Adding DE (Charging the filter)

On initial start-up and after backwashing a DE filter, the DE powder will need to be replaced, this should be done within 2 minutes of the filter running. The DE powder is measured in pounds or coffee cans. Add EC 30: 3 lb., EC 40,45: 4 lb., EC 65: 6lb. EC 75: 7lb. of D.E. powder into a clean bucket of water and pre-mix before pouring slowly through the skimmer 1 lb. at a time with the pump running. DO NOT allow the system to run longer than 2 minutes without D.E.

Regeneration (Bumping)

As the pressure builds and the flow becomes less, it means that the D.E. powder is becoming saturated with dirt. When the pressure increases 10 psi above the normal starting pressure you should bump or regenerate the system following the instructions below. If the pool is very dirty or has a lot of algae, the filter may require frequent backwashing, as the D.E. will saturate very quickly.

1. Turn off the motor.
2. Open the air relief bleeder valve on top of the tank.
3. Follow your filter's guidelines by bumping the handle down slow and up briskly, 4-5 times.



4. Turn the motor back on and then when water starts spraying out of the bleeder all the air will be out of the tank. Close the bleeder. Cleaner D.E. now is exposed on the tubes and dirt and debris is at the bottom of the tank.

At this point the pressure should be lower and the flow greater.

If the pressure should go back up again within a short period of time, it means the D.E. is entirely saturated with dirt and you will have to drain all the D.E. from the tank and add new D.E., this is called Backwashing- see the following page.

Backwashing- replacing the DE (using water flow)
Backwashing is recommended when the gauge pressure rises more than 10 psi in less than a 24 hour period or when cloudy water returns to the pool for longer than 30 seconds after regeneration. Before backwashing make sure that the backwash hose is extended to an appropriate area to discharge the used DE, dirt and water.

1. Turn off the motor.
2. Open the air relief bleeder valve on top of the tank.
3. Follow your filter's guidelines by bumping the handle down slow and up briskly 8 times.
4. Open the filter drain (Note: if the filter is installed below the pool water line, close the suction and return valves) and allow water and dirt to empty completely through the backwash hose.
5. After the filter has drained and with the drain still open, run the pump for a few seconds to flush out any dirt remaining in the bottom of the filter. (Note: be sure to open suction valve, if closed, prior to turning on pump, or if the filter is installed below the pool water line, opening the suction valve for a few seconds with the pump off will adequately flush the unit).
6. Close the filter drain and the vent valve-when water flows from valve.
7. Open the suction and return valves (when used).
8. Start the pump and let the filter fill with water.
9. **REPEAT** the BACKWASHING procedure.
10. Charge the filter with new DE per the instructions above.

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CAUTION: All suction and discharge valves must be open when starting the system. Failure to do so could cause severe personal injury and/or property damage.

Cleaning the DE filter (chemically cleaning)

If the filter pressure reading remains high AFTER the filter has been backwashed and charged with fresh DE and the pool water is clean and clear you may need to acid wash the grids or tubes inside the tank. A chemical filter cleaning is generally required once to twice a season-often at pool closing time. Please refer to your filter operating manual for complete details on chemical cleaning.

Click on your filter model below for a complete owner's manual

HAYWARD

Perflex Series EC 30 Perflex EC-40 Perflex EC-45 Perflex Series EC-65, EC-75

SAND FILTERS

Sand is the oldest and most popular method of filtration. Water passes through the pump housing and enters the sand filter through the multiport valve head, which controls the directional flow of the water. As water passes through a bed of filter sand (silica quartz) dirt is trapped in the sand bed and clean filtered water is returned to the pool. When the filter becomes dirty- pressure builds in the sand filter and the water flow returning to your pool decreases. When you initially start your sand filter you will want to make a mental note of the "normal" or "starting pressure", when your pressure gauge increases 10 psi above that reading you should clean the sand by backwashing the filter.

Backwashing involves reversing water flow through the filter and sending dirt through a waste line. A valve on the filter tank will direct the water to control backwashing and other functions. When using a rotary multiport valve on a sand filter be sure to shut off the pump and motor before changing valve positions. The o-ring inside of the valve, tank and pump and motor should be lubricated at least once each season with an o-ring lubricant. DO NOT use vaseline® as the petroleum can breakdown the rubber material)

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Sand filters with a single speed pump should run a minimum of 8 to 12 hours a day. Sand should be replaced every 2-3 seasons. When replacing sand use only swimming pool filter quartz referred to as #20 silica sand, DO NOT use play sand. When replacing sand be careful of the bottom laterals (slotted tubes) at the bottom of the filter tank. Check laterals for cracks and replace if necessary.

The following are GENERAL guidelines for operating a sand filter. Detailed instructions on the operation of your sand filter can be found below or in the printed manual that came with your filter.

REMEMBER NEVER CHANGE VALVE POSITIONS WHEN PUMP & MOTOR IS RUNNING

VALVE OPERATION

1. **FILTER POSITION**- This is the process by which the water from the pool passes through the filter tank and the sand. As the water trickles down through the sand, the dirt and debris are trapped by the sand, thus filtering the water. The filter should be operated a minimum of 8 hours a day.

2. **BACKWASH POSITION**- This process is used to clean the debris that has accumulated, out of the sand. The water is essentially moving in a reverse fashion. This should not be done for more than one minute at a time, and should be done when the flow of water back to the pool has slowed considerably and the pressure gauge has doubled the original normal starting pressure.

3. **RINSE POSITION** - This is done after backwashing to settle the sand and cloudy water inside the tank caused by backwashing, so sediment will not pass back into the pool.

4. **RECIRCULATE POSITION**- Water is passed from the skimmer to the pump and then up to the valve; however, instead of passing through the sand, it passes through the valve head and then back into the pool. Re-circulate is used to circulate chemicals without filtering; this will simply circulate the water throughout the pool.

5. **WASTE POSITION**- this function is used when one desires to draw water or vacuum debris from the pool directly onto the ground (bypassing the tank). For example, if there is a lot of debris accumulated on the floor of the pool, one would use this process to vacuum it from the pool onto the ground through a backwash hose, bypassing the filter tank

6. **CLOSED POSITION**- this position is used when one wishes to shut off water flow through the valve. The valve is left in this position for winter closeup, since it shuts off all of the passageways through the valve.

BACKWASHING

When the return flow diminishes and your filter pressure gauge reads 10 psi higher to double the normal starting pressure it is time to backwash.

1. Turn off pump and motor.
2. Turn valve handle to backwash position.
3. Open backwash gate valve (optional)
4. Turn on pump and motor for one minute.
5. Turn off pump and motor
6. Turn multiport valve to rinse position
7. Turn on pump and motor for an additional 30 seconds.
8. Turn off pump and motor.
9. Turn valve handle to backwash position .
10. Turn on pump and motor for one minute.
11. Turn off pump and motor
12. Turn multiport valve to rinse position
13. Turn on pump and motor for an additional 30 seconds.
14. Turn off pump and motor.
15. Turn multiport valve to filter position.
16. Open air relief bleeder valve.
17. Close backwash gate valve (optional)
18. Turn on pump and motor.
19. Close air relief bleeder valve.

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Click on your filter model listed below for a complete Owner's Manual

Hayward S166T

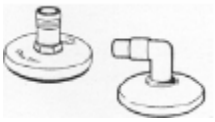
SwimPro 16 inch SW166T

SwimPro 19" & 25"(196T, 236T,256T)

VACUUMING

To keep your pool clean it will be necessary to routinely brush the pool walls and floor and vacuum the pool floor to remove dirt and debris. When vacuuming you are using your pool pump with vacuum attached to skimmer to pull dirt and debris from the pool floor to be trapped inside of your filter-returning the water back to the pool. You should vacuum your pool on a regular basis, generally once a week- or as needed. If your looking for a little less maintenance there are a variety of automatic cleaners available today for all pool types and budgets. Your Pool City pool professional will be happy to recommend a pool cleaner that is right for you.

Your manual vacuum consists of a vacuum head, vacuum hose, telescopic pole and (optional) skim-vac plate. The Vacuum head attaches to the telescopic pole, the hose slips onto the vacuum head on one end- (if you have a swivel end on your hose attach the swivel cuff end to the vacuum head) the other hose end will slip onto the skim-vac or directly into the suction opening in the skimmer- follow the steps below before attaching the vacuum hose in the skimmer or skim-vac.



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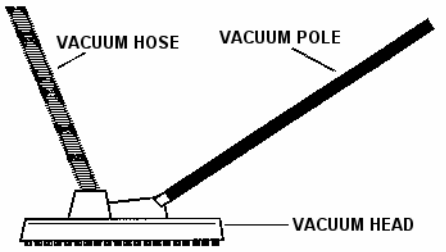
Before vacuuming you should:

- ✓ Check the water level- should be at the ½ way point of skimmer opening. A lower water level could cause the pump to loose prime while vacuuming.
- ✓ Check the skimmer basket- empty if needed. The skimmer basket will remain in place when using a skim-vac. The skim-vac will sit over the skimmer basket with a fitting in which to attach your vacuum hose. If you are not using a skim-vac you will need to remove the skimmer basket in order to connect the vacuum hose to the suction opening. If you have more than one skimmer you should close off the skimmer not be used, by rotating the flo-plate over the suction port.
- ✓ Check the pump strainer basket-clean if necessary.
- ✓ Check the filter pressure- backwash if necessary.



You are now ready to prime the vacuum hose:

- ✓ Submerge the vacuum head (already attached to pole and hose
- ✓ With the filter running hold the free end of hose in front of the return wall fitting to purge the hose of any air and fill with water. When you no longer see any air bubbles coming from the vacuum head the hose is primed.
- ✓ Hold the hose underwater to maintain the prime while connecting to the skimmer. The hose can usually fit through the front of the skimmer opening (weir door may need to be removed) where you can slip onto skim-vac plate or insert into suction opening.

You are ready to vacuum:

Move the vacuum head slowly and gently to thoroughly clean your pool and not “stir” up debris. It is normal for the pressure reading on your filter’s gauge to drop while vacuuming- as the water flow is being restricted through the vacuum head and hose. You should not, however, notice a decrease in the return flow. If while vacuuming the suction decreases check the strainer baskets (in skimmer and pump) and empty if necessary. If the baskets are clean and suction is still diminished the filter may need cleaned or backwashed- you will notice a decrease in the return flow at this time. When vacuuming large amounts of dirt or debris it may be necessary to clean or backwash during the vacuuming process.

During spring clean up, after an algae problem or heavy dirt/debris you may want to consider vacuuming to waste. If your filter type allows for this option the water being vacuumed from the pool would be discharged through a waste or backwash line out of the pool vs. circulating through the filter. You will loose a considerable amount of water doing this and should consult your pool dealer first.

INGROUND POOLS- If you notice the suction is too strong turn the valve at the front of the pump more toward the main drain. Likewise, if the suction is too weak turn the valve more toward the skimmer. NOTE: You will not be able to vacuum if the valve is on full main drain.

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If you are experiencing air bubbles coming from the return inlet or low suction (and filter does not require backwashing) you may have an air leak on the suction side.

- ✓ Check the vacuum hose itself for pinholes or cracks that could be sucking air, check the connection at the skim-vac or skimmer- is the hose still submerged
- ✓ Check the pump housing is it filled with water? The strainer lid on the pump housing holds an o-ring that should be checked as well. Lubricate with an o-ring lube from your pool dealer. If o-ring is worn, cracked or stretched replace it. A filter system that is running fine can sometimes show air leaks when the suction is increased during vacuuming.

Automatic Pool Cleaners keep your pool looking great, effortlessly! There are several cleaners available to suit every pool style and budget,

AUTOMATIC POOL CLEANERS

Your Pool City representative will be happy to help you in selecting the right automatic cleaner for your pool.

Hand held cleaners, such as the Catfish or Pool Blaster, snap onto any telescopic pole and require no installation or assembly. Using a rechargeable battery and a reusable, easy-to-clean, filter bag they collect leaves, hair, dirt, and even sand, silt and algae which means dirt and debris stay out of your pool.

POOL BLASTER OWNER'S MANUAL ***CATFISH OWNER'S MANUAL***

Suction type cleaners, such as the Aquabug® , Hayward Aqua Ray, Zodiac1500® and KonTiki®, use the filtration system of your pool working from the suction side of your skimmer like you would use your manual vacuum. These automatic cleaners move effortlessly with no additional costs. They also aid in circulating chemicals and water temperatures from the bottom of the pool to top (through the clean water return) more efficiently.

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The Hayward AquaBug® works in above ground and on-ground flat bottom pools. Patented SmartDrive programmed steering system ensures the entire bottom of the pool is cleaned quickly and completely. Install in less than 10 minutes, without tools.

AQUABUG OWNER'S MANUAL

The Hayward AquaRay® cleans the pool floors and walls of your above ground pool, automatically. It simply connects to the skimmer or dedicated suction line, using the pool's existing filtration system. AquaRay installs easily without tools in less than 10 minutes.

AQUARAY OWNER'S MANUAL

HAYWARD

The Zodiac 1500® and KonTiki II will thoroughly clean your aboveground pool — removing dirt, debris, bugs, twigs, leaves and even pebbles. These cleaners require no extra plumbing and incur no additional energy cost cleaning your pool automatically, anytime your pump runs.

ZODIAC 1500 OWNER'S MANUAL ***ZODIAC KONTIKI II OWNER'S MANUAL***

ROBOTIC CLEANERS

The Blaze, fully robotic above-ground swimming pool cleaner completely cleans pool floors with a simple touch of a button. Lightweight, requires no installation, no hoses no suction lines, no booster pumps and no filter connections. Simply plug it in and the patented hydro scrubbing jets gently power wash the pool liner, cleaning deep into pool seams & creases to lift sand, silt, algae and large debris into the vacuum chamber. An Incredible 10,000 sq.ft./cycle cleaning coverage enables BLAZE to clean large residential pools in under one hour. At half the cost of other robotic cleaners, you will experience an enormous savings in electricity, water, chemicals and maintenance – allowing the Blaze to pay for itself in a short time... and lasting for many years.

BLAZE OWNER'S MANUAL

ROUTINE MAINTENANCE

Keeping your pool physically clean is as important as the regular addition of chemicals. Debris in the pool is unsightly, increases sanitizer demand and may cause staining of the interior. During the swimming season, thoroughly clean your pool at least once a week. To ensure proper circulation and filtration you should run your system a minimum of 8 -12 hours per day.

1. Maintain proper water level, 1/2 to 2/3 on skimmer opening (you can lose up to 2" of water per week through evaporation, splash outs and back-washing.)
2. Skim pool surface with leaf skimmer every 1 to 2 days.
3. Brush walls and floor with proper brush weekly, this will reduce your vacuuming time.
4. Remove dirt ring from waterline with a tile cleaner weekly.
5. Check 2-3 times per week and empty skimmer baskets as needed.
6. Check pump & motor weekly and clean out hair and lint basket as needed.
7. Check filter pressure and backwash as needed- when pressure gauge raises 10 psi above the normal starting pressure. *See your filter operating manual on CD for details.*
8. Keep deck area clean near pool.
9. Check hoses and equipment and replace when needed.

10. Vacuum pool weekly or as needed. *See Vacuuming for complete instructions.*
11. Test your pool water using your test strips 2-3 times per week and follow a regular chemical treatment program.

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VINYL LINER CARE & MAINTENANCE

Vinyl liners provide one of the most maintenance free pool interiors available. Today's liners offer a beautiful selection of patterns and styles to choose from. There are several factors that can influence the life and durability of your vinyl liner, just like any other pool surface. From UV rays to chemicals and careless cleaning there are certain situations you should avoid. Premature pattern wear due to abrasive cleaning tools and bleaching due to improper chemical balance are two of the biggest threats to the life of a vinyl liner. Please read and follow the following care and maintenance recommendations to lengthen the life of your vinyl liner.

1. Always maintain your swimming pool water chemistry at the proper levels:
    - pH between 7.4 -7.6
    - Total alkalinity 80-120
    - Calcium Hardness approx. 200-300 ppm
    - Free chlorine residual between 1.0-3 ppm, Nature 2 pools- 0.5-100m
2. Do not let the pH of the water drop below 7.2. A low pH level can cause the liner to form wrinkles as well as corrosion of metals in pool equipment. Maintaining a proper Total Alkalinity level will help stabilize your pH reading.
3. If you suspect your source water may have a high metal content or excess minerals you should add *Nature's Way* Stain & Iron Control **PRIOR** to adding chemicals to the water.
4. Always follow exact manufacturer's recommendations when adding chemicals to your pool. If directions require diluting or dissolving a chemical be certain that you follow these directions. If pre-dissolving **ALWAYS** add chemical to water **NOT** water to chemical, see *Chemical Safety* for details. After applying any power based chemical it is necessary to check for undissolved granules and stir and brush to further dissolve. Leaving undissolved granules may cause staining or premature fading of the liner, which is not covered under warranty. Concentrated chemicals near the waterline or pool floor can cause bleaching of the color or pattern and or damage to the liner. Don't mix chemicals together or add into the pool at the same time. Combinations of chemicals that alone would not have an affect on your liner can be detrimental when combined. Water should be circulating when chemicals are added, if you have a 2-speed pump and motor it should be on high speed.
5. When closing your pool for the season always let the water circulate for several hours (follow closing chemical directions) after the final addition of chemicals before shutting down the system. Chemicals can become concentrated in the water and can cause discoloration of the liner's color if not properly dispersed and circulated.
6. Be sure all organic debris (leaves, worms, etc) are removed from pool bottom prior to closing to prevent staining of the liner. Always close your pool with a properly sized winter pool cover that fits tightly around the entire edge of the pool to prevent the accumulation of debris that can cause staining. **DO NOT** use cinder blocks or other sharp edged, heavy materials to hold down winter cover- use only water tubes or an anchored safety cover.

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7. Routinely clean the water-line from the “bathtub ring” that can develop due to body oils, dirt and organic debris, suntan lotions, etc. **DO NOT** use abrasive cleaners or cleaning tools such as scouring powders, steel wool pads or sharp bristled brushes on your liner. Use only *Nature's Way* Tile and Vinyl Cleaner to clean the water line. The ring will stain if left untreated.

8. **DO NOT** drain your pool (other than directed for winter closing). Your pool should remain filled with water at all times. The older the liner, the higher the risk that it will shrink and not stretch back into its original shape.

9. It’s a good idea to always leave your vacuum head or maintenance brush attached to your vacuum pole. A pole with an open end (nothing attached) can cause a puncture or damage to the liner if it ends up in the pool.

10. If you have a small section of beaded liner that pulls out of the receiver track you may re-install by pouring very hot water over the liner to make the vinyl supple enough to pull up and snap into the liner bead receiver track.

11. In the unlikely event that you would get a small hole or tear in your liner it can easily be repaired with a patch kit from Pool City. Simply cut a circular patch of vinyl material, apply adhesive and fold over. Once underneath the water, quickly unfold the patch and place it over the hole. Apply pressure to the patch for 1 to 2 minutes and the vinyl patch will bond to the vinyl liner creating a water tight seal.

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HEATING YOUR POOL

Your pool won't contribute to your health or pleasure unless it's warm enough to swim in comfortably- and when you want to swim. Heating your pool will enable you to get the maximum value out of your investment by allowing you to enjoy the most comfortable water temperatures possible- using your pool more often.

How warm you keep your pool is, of course, entirely up to you. Competitive swimmers prefer a temperature of 78º F while recreational swimmers are generally more comfortable near 80º F, the young and elderly closer to 82ºF. The sun alone usually can't keep your pool water at that comfort minimum of 78 degrees F. By having a heater to warm your water you can add substantially to the daily use of your pool and extend your swimming season.

How long you can "stretch" the swim season depends on the climate in your area, the type of pool heating system you use and whether you use a pool cover. It's safe to say that in most cases the swim season can be doubled (or better) with a heater or heat pump and cover. Heating your pool won't only extend your season- it will allow you to swim more often "in season". In Cleveland, Pittsburgh and Seattle, for example, even the July - August average mean temperatures are usually below 75 degrees F and moderate heating would be essential for comfortable swimming. By contrast, average mean temperatures in summer are high and sustained. But "real" weather has a tendency to vary a lot from the mean, so it's a good idea to rely on a heater to brighten up the cool spots and lengthen the swimming season.

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There are several methods available to heat your pool, from the sun itself to: gas, oil and electric fired heaters, electric heat pumps and solar heating systems. The cost of these systems varies quite a bit. First, there is the initial or one-time cost of the heater you select and its hook-up or installation charge. Second, there is the monthly energy cost, which varies with the type of heating system you buy, the use of your pool, the pool water temperature you prefer and other variables. Third, there is the matter of annual maintenance and service. Operating costs can be kept to a minimum by installing an efficient, properly sized heater; using a good quality pool cover; and, of course, keeping your filter clean and your heating and filtering system well maintained. Your pool dealer will help you in choosing the heating system that best suits your budget, geographic region and lifestyle.

Heaters are sized mainly on the basis of the pool surface area and the difference between the pool and air temperatures. The average air temperature for the coldest month of pool use is used in the calculation. The heating load could also be affected by such things as excessive wind exposure or much cooler night temperatures than daytime air temperatures; in those cases a heater with more capacity may be desirable. Another factor which may determine the size of the heater you will need is the way you intend to use your pool. There are two common pool heating practices - "constant" temperature maintenance and "intermittent" heating. These are determined by how you want your pool heated - continually or on an intermittent basis.

To heat a pool quickly after periods of intermittent shutdown, a larger heater is needed. And in colder climates a larger than standard size heater also is recommended for "constant" heating. Maintaining pool temperature requires the same amount of fuel regardless of the heater size. For intermittent heating however, a larger heater actually saves fuel because it brings the pool to temperature more quickly. Again, your *Nature's Way* dealer will be able to guide you in choosing a properly sized heater for your needs.

The following tips will help you conserve energy and heat your pool more economically.

1. Keep a thermometer in your pool. It will pinpoint accurately the temperature most comfortable for you.

2. Keep your thermostat at the lowest comfortable setting. Each degree more heat than needed could add more to your monthly fuel cost and use up more energy than necessary.

3. Mark the "comfort setting" on the thermostat dial. This will prevent accidental or careless over-heating and waste of energy.

4. Lower thermostat to 70 degrees when pool is to be unused for three or four days. For longer periods, shut the heater off. You will save money on fuel consumption and help conserve energy.

5. Protect your pool from wind. Wind above 3 to 5 miles per hour can lower the pool temperature substantially. A hedge, cabana or decorative fence can be an effective windbreak.

6. Use a pool cover when pool is not in use. This can reduce heat loss by as much as 50%. If you are vacationing for a couple of weeks or shutting down for winter, turn the heater off completely, including any pilot light. *See Solar Covers & Reels for more info.*

7. Drain heater completely prior to freezing weather. Freezing water inside the heat exchanger can result in costly repairs. *Read heater owner's manual thoroughly*.

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POOL HEATERS

A typical gas heater is constructed of a metal cabinet enclosing a burner assembly, heat exchanger and assorted control valves, safety valves, temperature control and vent stack. The incoming water is heated by the open flame and returns to the pool after the heat has been transferred. The typical heater has an initial efficiency of 70-75 %, but this declines with time as the burner ages and the heat exchanger builds up deposits from the water.

Pool Heaters are available in natural gas, Lp, electric and oil-fired models. The direct fired natural gas heater is usually the most popular because of its low cost, reliability, ease of operation and the wide availability of natural gas. Most heater manufacturer's offer two types of gas-fired heaters, Millivolt and Electronic Ignition. Millivolt-has a standing pilot and a built-in millivolt electrical system. Electronic has 24-volt solid-state electronic pilot ignition supplied by household current. Both are as safe as your other gas appliances when properly installed.

We can assist you in choosing the type of heater and model size best suited to your needs. Regardless of the heater style you choose you will definitely want to read and follow the recommendations listed below, as well as the energy tips on the previous page:

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PROPER WATER CHEMISTRY- this is critical to the maintenance and overall life of any pool heater. The copper heat exchanger inside of most heaters can corrode quickly if the pH, Total alkalinity or calcium harness levels are not in balance.

PROPER USE OF CHEMICALS- Just as the water balance can affect the internal heater components- improper chemical use can as well. Read and follow all label directions- particularly when using acids or oxidizers- that can adversely affect the heater.

PROPER WINTERIZATION- Be sure to read and follow the operating manual instructions for draining and winterizing the heater- water left in the unit can cause freeze damage.

SAFETY FIRST- Realize that gas can be dangerous. Follow all of the safety precautions outlined in your operating manual. Gas and electric lines to heaters should be installed by professional plumbers and electricians following local and national codes. If you suspect a gas leak or smell gas, immediately clear the area and call the gas company from a telephone that is away from the area of the suspected leak. If you suspect a problem with your heater, don't take chances by trying to fix it yourself - call your heater professional or the local gas company. Have your heater professional verify these points about your installation:

- ✓ Make sure that there is no leakage of exhaust gases into any building. This is especially important if the heater is installed indoors. Improper venting or damaged or rusted-out venting can cause serious injuries, illness, or death from carbon monoxide poisoning.
- ✓ The heater exhaust vents should be located away from windows, air conditioners, or roof overhangs so that exhaust gases (which are poisonous) will not enter any buildings in the area. Check with your local building inspector for regulations concerning the location of heater exhaust relative to buildings.
- ✓ If your heater is located indoors, review the venting information in the heater owner's manual and, again, make sure that all vent pipes, air intakes, gas line installations, etc., meet all local and national code requirements.

TROUBLESHOOTING- If you are experiencing problems with the operation of your heater you can try following the troubleshooting steps listed below- if unsuccessful stop and call your pool dealer for service.

- ✓ Check that the heater is turned on and the pilot is lit, if you have one.
  To light (millivolt only):

    - Open front panel access door
    - Gas valve should be in the pilot position
    - Push gas valve know down SIMULTANEOUSLY
    - Push igniter button

- ✓ Check thermostat, make sure it is set correctly
- ✓ Check to be sure that the strainer baskets and filter are clean. Heaters have a pressure switch for safety that will not allow them to operate without the proper water flow.

Click on your heater make & model below to view or print complete operating manual, you DO NOT need to be on-line for this connection.

HAYWARD®

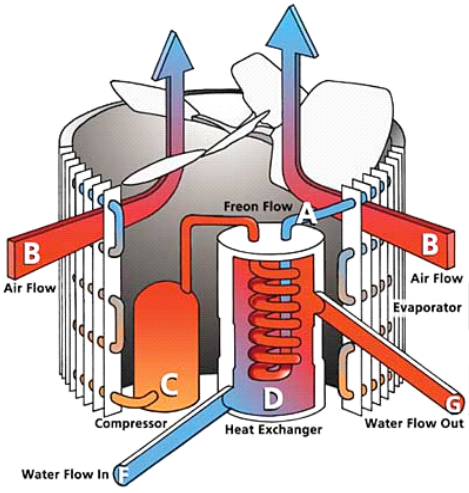
Above Ground H-Series H100, ABG100

H-Series 150,000- 400,000 BTU

H-Series Low NOx FDN electronic ignition

HEAT PUMPS

Electric heat pumps run like an air conditioner in reverse. Instead of removing the heat from inside a house and dumping it outside, heat is removed from the outside air and transferred to the swimming pool water via an exchange mechanism. The heat pump uses a refrigeration cycle exactly like your refrigerator or air conditioner. A fan moves and absorbs heat from ambient air, amplifying the process through compression action of the compressor, and transfers it to the water in the heat exchanger as it passes by the freon gas in the evaporator coil.



A heat pump's efficiency relies upon the amount of latent heat in the outside air and the relative humidity. The cooler the outside air and the lower the humidity, the less effective the unit is in heating the swimming pool. A typical 100,000 Btu/Hr. unit will only produce 83,000 Btu/ Hr. when the air temperatures drop to 65º F. When sizing a heat pump pool heater it is important to provide a unit that is large enough to heat the pool during the typical 8-9 hour run time for the pool pump. If this run time is also during the daylight hours the efficiency of the unit is greatly enhanced. Your pool dealer will help you in choosing the model best suited for your pool.Although the initial investment in a heat pump is considerably more than that of a gas pool heater, heat pumps are growing in popularity because of their long life expectancy and inexpensive operating costs. When operating a heat pump be sure to follow the recommendations listed below as well as the energy tips found previously in *Heating Your Pool.*

PROPER WATER CHEMISTRY- Good water balance will have an effect on the life of your heat pump. Metal components inside of most heat pumps can corrode if the pH, Total alkalinity or calcium harness levels are not in balance.

PROPER WINTERIZATION- Be sure to read and follow the operating manual instructions for draining and winterizing the heat pump- water left in the unit can cause freeze damage.

TROUBLESHOOTING- If you are experiencing problems with the operation of your heat pump you can try following the troubleshooting steps listed below- if unsuccessful stop and call your for service.

- ✓ Check that the heat pump is turned on and that the circuit breaker is on. ***remember your heat pump will only operate when your filter system is running.***
- ✓ Check thermostat, increase and see if unit will turn on.
- ✓ Check to be sure that the strainer baskets and filter are clean. Low water flow (caused by obstruction, dirty baskets or filters or closed valves) will cause unit not to function.
- ✓ Outside temperature may be too low- refer to owner's manual.
- ✓ Turn the heat pump on and of a few times.

Click here for the complete Aqua Pro™ SunRunner Operating Manual

Click here for the complete Hayward HeatPro™ Operating Manual

SOLAR HEATING SYSTEMS

Solar pool heating is the most economical, reliable, and environmentally friendly way to heat your swimming pool. Unlike other pool heating systems such as gas or electric heat pumps, solar pool heating systems have little ongoing operational cost.

ECO-SMART™

After the initial system purchase price, solar heat delivers FREE energy from the sun to heat your pool day after day, month after month, and year after year. It is lightweight, durable and easy to install. The system can be installed on the ground near your pool, or mounted to the roof of your house, shed or cabana. Save money on fuel and electricity bills, extend your swimming season by weeks, and get more enjoyment from your pool than ever before. Using your existing pool pump, water circulates through the solar collectors, is heated by the sun and returned to the pool through the existing fitting. A solar pool heating system will raise the temperature of your pool water by up to 10° F or more.

Some simple suggestions for solar heating to operate under the best conditions include:

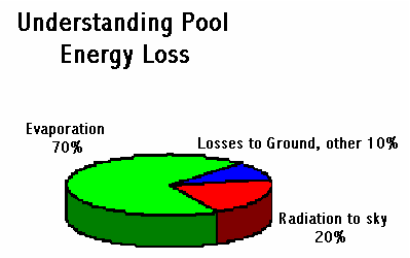
- Ideally the collector should receive unobstructed sunlight from 8am-4pm.
- Install in an open area that is, at a minimum, equal to 50% of the size of your pool.
- Ideally the sun collector should face due south; east or west of south can be acceptable.
- A Solar cover or liquid solar blanket should be used in conjunction with a Solar Heating System to maximize the temperature increase and retention. *See Solar Covers & Reels*

Earth's Element Solar Heating System Owner's Manual

FAFCO Solar Bear Installation & Owner's Manual

SOLAR COVERS AND REEL SYSTEMS

For a variety of reasons, the single biggest energy conservation move that you can make is to put a cover on the pool or spa. First, the cover reduces the heating bills by preventing heat loss. The cover can also reduce the amount of dirt and grime that enters the pool, reducing the amount of time it takes to remove them from the water through filtration or vacuuming.



In addition to collecting "free heat" from the sun the cover will save on the amount of chemicals and water that need to be added. Covers can also reduce evaporation, which can waste both water and heat and increase the Total Dissolved Solids levels in the water. Some estimates say that as much as 50 gallons a day can be lost in an uncovered pool from evaporation. That's more than 18,000 gallons of water wasted each year.

Though solar pool covers are not a necessity, they are highly recommended in preserving energy and making your pool more pleasant to swim in. Please note the following tips when using your solar cover:

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- ✓ **CAUTION:** Solar covers pose a drowning hazard to children or pets who may try to walk across the cover. ALWAYS keep an eye on children around the pool and warn them that the cover will NOT support them and that they should not try to play on or around the pool. DO NOT swim with the cover on.
- ✓ Covers should float on the surface of the water- bubble side down.
- ✓ DO NOT remove your cover and lay it on the lawn. The intense UV rays of the sun will burn-out the grass very quickly.
- ✓ Leave your solar cover off immediately after shocking your pool and during treatment for visible algae or cloudy water. This will help promote the circulation and water quality of the pool as well as extend the life of your solar cover.
- ✓ When solar cover has been removed and is reeled onto a solar reel- it should be covered with the protective white plastic supplied with cover, to protect the coiled cover from gathering heat in the sun and possibly sticking together.
- ✓ DO NOT leave your pool covered for 3 to 4 days or more without removing the cover from time to time to promote circulation and reduce algae growth. This includes vacation time- leave your cover OFF while away.

For pools which are open all day, a cover should be placed over the pool as soon as it closes, and taken off just before it opens for the day. Pools that are not in use during daylight hours, the effectiveness of a pool cover will depend on whether the evaporation and other losses prevented by the cover exceed the solar gain reduction caused by the cover. This balance is affected by the type of cover and the climate. In dry and/or windy conditions the evaporation rate of the pool increases, and it is generally beneficial to have a transparent or bubble cover on during daylight hours. In warm, humid conditions the evaporation rate decreases, and it may be more beneficial to leave the cover off during the daytime.

SPRING OPENING OF YOUR POOL

1. Remove water and debris from winter cover carefully to keep any debris from entering the pool. For water removal, use a cover pump or a siphon. For leaves and other large debris, use a leaf net.
2. Remove winter cover and other winterizing accessories. Clean winter cover and allow the winter cover to dry thoroughly before folding and storing off the ground. **DO NOT** lay the winter cover on the grass at anytime as it can burn out and kill the grass in a short period of time.
3. Clean the scum line at the water level with *Nature's Way* Tile & Vinyl Cleaner.
4. Hook up all hoses connecting the skimmer to the pump, filter and return inlet of pool. See the filter section within this manual for detailed instructions Be sure any shut-off valves for skimmer and return are in the open position. If your pump does not have a shut off valve you can install one at the pump strainer to stop the water flow into the pump housing when cleaning strainer basket. If you have a Nature² Vision PRO unit replace the drain plug and tighten the mineral cartridge and chlorine collars.
5. Lubricate the O-ring on the lid of your strainer basket (and all o-rings on equipment and fittings) with silicone o-ring lubricant each spring. Lubricating the O-rings and gaskets will prevent drying out and cracking and ensure a good seal. **DO NOT** use Vaseline® as petroleum products will erode gaskets.
6. Fill pool to proper level. The water should be approximately 1/2 to 2/3 up on the skimmer.
7. Pump strainer housing should be primed (filled with water no air). If the equipment is sitting below the water level, opening the strainer lid will complete the prime.
8. Using a leaf net or a leaf vacuum, remove leaves or any large debris from pool.
9. Vacuum any small debris from pool bottom using a manual vacuum for best results. If there is a lot of fine debris and sediment on the floor of the pool you may want to vacuum on Waste if possible. See your *filter* instructions in this manual for details.
10. If you suspect excess minerals or any metal present from the source water, especially if you are using well water to fill, use an initial dose of *Nature's Way* Stain & Iron Control. It is best to treat metals in the water with *Nature's Way* Stain & Iron Control PRIOR to adding any chlorine.
11. Test pH and Total Alkalinity and adjust if needed. The proper ranges are as follows: pH 7.2-7.6 and Total Alkalinity 80-120ppm. Again, for accurate dosages to adjust pH and Total Alkalinity go to Test Water, from the main menu.
12. If your pool is equipped with Nature² Vision PRO insert a new mineral cartridge #50001900. Turn chlorine collar counterclockwise to remove and lift off cap. Carefully insert a new Nature's Way Z-Pak cartridge into the chlorine chamber. Follow the start-up instructions *Nature²* to activate your mineral cartridge.
13. Shock pool with *Nature's Way* Super Shock (included in your *Nature's Way* Starter Kit) to kill bacteria, viruses and algae. Broadcast 1 lb. per 16,500 gallons of water.
12. Add *Nature's Way* Instant Pro Algicide or Natural Chemistry PHOSfree to help prevent algae.
13. If needed, add *Nature's Way* Stabilizer. You should test the water prior to adding stabilizer. If a cyanuric acid test yields a reading under 30 ppm add a dose, following label directions. **DO NOT** backwash for 3 days.
14. The following day, retest chlorine and other levels. Chlorine will dissipate after initial shock and once the free chlorine test reads 3.0 or lower you should begin routine chlorination. Pools with a Nature² Vision PRO need to maintain a free chlorine reading of 1-3 ppm for the first four days and run the filter continuously, 24 hours a day, during that time. Once the 4 days are up, your mineral cartridge will be activated and you can allow the chlorine level to drop to a 0.5-1.0 ppm level.

POOL CLOSING – WINTERIZING

When you are ready to close your pool for the season you will want to first be sure that the water is CLEAN AND BALANCED. Before you begin you should assemble and inspect all winter closing items: pool cover, freeze protectors & plugs, winterizing chemicals, etc. Replace any worn or missing items.

1. Vacuum the entire pool thoroughly and remove ALL leaves and debris. If algae is present, be certain to destroy it completely before you close the pool– see Algae section.
2. Nature ^{2} Vision Pro Users: Remove the Vision Pro cartridge and discard with household trash. Put the temporary cap (that was originally shipped with the unit) on unit and tighten down the collar. Carefully remove Z-Pak, follow package instructions for proper chemical disposal. Replace empty chlorine holder into unit, retighten mineral cartridge and chlorine collars and run pump for 30 minutes. Remove and save the drain plug. Rinse out Vision Pro thoroughly with water. After completing winterization, loosen mineral cartridge and chlorine collars.
3. Test the water and take any necessary to steps to balance the pH and Total Alkalinity.
4. Add the chemicals found in your *Nature's Way* Winterizing kit, following label directions.

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5. **IMPORTANT** Run your filter continuously for 2-4 hours to make sure the chemicals have circulated thoroughly.
6. Water level should be lowered below the skimmer. Skimmers protected with a *Skimmer Plug™* should drain the water 1" to 2" inches below the mouth of the skimmer. If you are NOT using a closure plate you will need to lower the water 6" to 8" below the skimmer opening. You can lower water by starting a manual siphon with your vacuum hose or garden hose or by using your pool pump & motor.
7. Protect your skimmer by using a *Skimmer Plug™* or a freeze protector.
8. Shut off pump and motor.
9. Remove any directional part of the return protruding into the pool, such as the eyeball fitting or return nozzle and install appropriate plug.

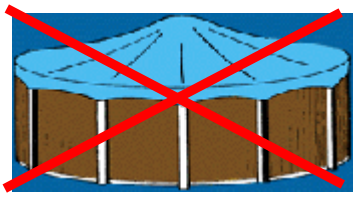
10. Disconnect all hoses.
11. Drain all equipment: pump, filter and heater, automatic chemical feeder, (store drain plugs in pump basket). Refer to the operating instructions, found within this manual, for detailed winterizing instructions for your filter, heater, light, etc.. All water must be completely drained from any equipment. **IMPORTANT:** Freeze damage caused by improper winterization is NOT covered under warranty.
12. Remove steps or ladder.
13. Inflate air freeze pillow (ice compensator stabilizer) approximately 2/3 full with air and secure in center of pool. **NOTE: DO NOT** fully inflate air freeze pillow. You may also want to place a piece of duct tape over the air cap to help keep securely closed throughout winter.

14. Cover should rest on the surface of the water.

RIGHT

The cover should lie on the surface of the pool water. Leave slack, do not pull tight. Any excessive accumulation of water or snow should be removed immediately.

WRONG



Do not install the cover this tight. The weight of snow or rain will force the cover at the seams and along the pool edges.

15. Secure cover with cable and locking winch and or attach cover clips. When securing cover with cable, cord or other mounting device, make sure the cable, cord, etc. is positioned over the top of the thru-the-wall skimmer and **NOT UNDER THE SKIMMER**.

16. Keep an accumulation of 1 to 2 inches of water around perimeter of cover to prevent cover from flapping or dislodging during high winds. If ice forms on cover, do not tamper with ice or attempt to remove. Leave ice until it melts. Before removing cover in the spring be sure to siphon off all excess water resting on pool cover.

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WARNING FOR POOL OWNERS WITH BEADED LINERS: If you do not winterize your pool properly, and allow your water level to go below the recommended levels as described in step #6, your liner may disengage from the bead receiver. It is very IMPORTANT that you maintain a water level as close to the operational level as possible.

IMPORTANT: During the winter months, inspect your pool and surrounding area. Remove any accumulation of water, ice and snow from the top of the pool and from the skimmer to prevent formation of an ice, water or snow load which can cause severe damage to pool and pool cover. It is essential that you monitor the amount of snow and ice on the top of your pool during the winter months. If you feel that the cable that attaches the cover to the pool is too tight and is pulling up on the pool ledges, or is creating excessive weight on the pool, release the cable at once to prevent damage to the pool.

Improper installation of your pool cover can cause damage to your pool and void all pool and cover warranties.

SWIMMING POOL SAFETY

Safety is the most important factor to consider when using or caring for your pool. Please read all of the pages contained within this section, and make a habit of practicing basic safety in the use and care of your pool and equipment. Also, read your equipment owner's manuals carefully. When you see blue underlined text you can click to open up more information on that particular topic. In this section, we will discuss four main subgroups of safety:

Chemical Safety ***Water Safety*** ***Electrical Safety*** ***Equipment Safety***

The following ***GENERAL SAFETY RECOMMENDATIONS*** are supplied by the Consumer Product Safety Commission (CPSC) and The Association of Pool & Spa Professionals (APSP) and provide an overview of the various safety aspects mentioned above. Remember you do not know which pool safety step can save a life!

Water Safety Video

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- Set pool rules and stick by them.
- Never dive in an above ground pool or shallow water. Nine out of ten diving injuries occur in six feet of water or less.
- Post depth markers to accurately identify the pool depth.
- Keep these basic safety items by the pool at all times:
    1. Shepherd's crook or long-handled hook
    2. Life ring preserver-coast guard approved
    3. First aid kit including written instructions on how to administer CPR
- Never leave children unattended or even out of eye contact in your swimming pool.
- Make sure pool is inaccessible to children when unsupervised or you are away from home.
- Don't leave toys around the pool or in the water. They could encourage an unsupervised child to enter the pool area.
- Follow instructions for assembly and use of a ladder.
    - o Locate the ladder on a solid base
    - o Face the ladder when climbing
    - o Use the hand grips
    - o One person on the ladder at a time
    - o No running or pushing on the ladder
    - o Swing-up ladders should be raised when leaving pool unattended—even for a moment.
- Make sure you are aware of local requirements concerning fencing around pools.
- It is a good idea for all family members to become familiar with CPR (Cardio-Pulmonary Resuscitation). Training is normally available from a number of different groups, i.e., American Red Cross & YMCA.
- In case of emergency, call 911 immediately. It is a good idea to have a cordless phone available in the pool vicinity. Keep the following emergency phone numbers posted near the pool:
    - o Police/Fire/Rescue
    - o Poison control
    - o Physician
    - o Ambulance/Hospital

- Be aware and prepared for unsafe weather conditions. All swimmers should leave the water immediately as soon as you see or hear a storm to prevent possible electrical shock.

- Keep all chemicals sealed and out of children's reach. Always follow all directions on label.
- Never mix chemicals together.
- Always add chemicals to water, never the reverse.
- Chemicals should be stored in a cool, dry place.
- After handling chemicals, clean hands thoroughly.
- Never put a quick dissolving chlorine tablet or granular chlorine into an automatic chlorinator or floating dispenser.
- Pool alarms are recommended for families with small children or pets.
- Many serious pool accidents involve alcohol. Remember alcohol and pools don't mix!
- Glass and Sharp objects should not be used on or around the deck of the pool.
- All electrical equipment (including power supply cords) used with or around the swimming pool should be protected by a ground-fault circuit interrupter (GFI) at the power source. Your licensed electrical contractor always supplies this circuit. Serious injury and even death can result from improper electrical hook-up.

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Chemical Safety

When opening your pool or doing routine maintenance, remember to follow common-sense rules for safety. Using pool care products can be dangerous if you forget the right handling and storage procedures. Click here for more information on *Chemical Safety-Storage and Handling.* All chemicals used for any purpose in or around the pool should be handled very carefully, stored in a safe place, and precautions noted. Chlorine and other pool sanitizers are classified as oxidizers. These chemicals require specific precautions, see *oxidizers*. Some pool chemicals, specifically balancing chemicals, are classified as acids and also require specific handling and usage instructions, see *acids*.

Water Safety

Pools are a great asset to any home or community, however, rules must be set and enforced, manuals must be read and re-read, and knowledge of proper water safety is key to avoiding preventable accidents. Every parent should teach his or her child(ren) to swim at an early age. You can contact one of the following organizations on-line to locate a certified water safety instructor in your area: www.ymca.net or www.swimamerica.org With a few precautions, the likelihood of a drowning incident may be significantly diminished. Please click below to view the following safety pamphlets related to drowning prevention: *Children aren't waterproof*

Layers Of Protection

Your pool provides your family the opportunity to enjoy healthy recreational activity together, as well as the means to teach your children a lifelong respect for water. As a responsible adult, you are aware of the risk of a child drowning when around any body of water, including pools. While it is a fact that adult supervision is the primary solution to childhood drowning, it is also a fact that most of these accidents occur when there has been a lapse in that supervision. Studies have shown in the majority of cases it is during these short lapses in supervision that children have gained access to the pool are through:

- ✓ **Open or unlocked house doors or windows,**
- ✓ **Open, unlocked or broken fence gates.**

Several suggested alternatives or options have come forward to provide a layering effect between the house and the pool. These options are to be used only in conjunction with proper

supervision. **In no instance**, are they to be used in place of supervision. In discussing pool safety alternatives, Association of Pool & Spa Professionals (APSP),believes that certain requirements should be met at an absolute minimum. These are as follows:

• All pools should be enclosed by a barrier.

• When the house is used as one side of the barrier, all windows should have a latching device and all doors should be self-closing and self-latching with the latch located at least 56" from the floor.

• All fence gates should be self-closing and self-latching and capable of being locked when the pool is not supervised.

The suggested recommendations are in logical progression from the house to the pool. The APSP recommends that you not rely on any one system, rather several together providing layers of protection. Please pay particular attention to any sliding glass doors which provide access to the pool. These doors may often be left open, requiring layers of safety.

Under NO CIRCUMSTANCES should diving occur in an above ground pool!

Entrapment

Entrapment occurs when a swimmers' hair or body parts are sucked into or held down by a strong vacuum through a suction fitting or main drain. Be certain that all swimmers know to **STAY AWAY** FROM the main drain and suction fittings. Regularly inspect the skimmer lids, and main drain covers to be sure they are securely screwed in place without sign of cracking or deterioration. If a broken or missing grate or drain cover is detected, the pool should not be used until the hazard is fixed. It is a good idea to have an emergency shut-off switch for the pool pump in an easily accessible area near the pool. Anyone using the pool should know where it is and how to use it in the event of an emergency.

Click here to learn more

Electrical Safety

GFCI - All electrical equipment (including power supply cords) used with or around the swimming pool should be protected by a ground-fault circuit interrupter (GFI) to protect from possible shock. Your licensed electrical contractor always supplies this circuit. Serious injury and even death can result from improper electrical hook-up. The GFI is located in either the junction box that connects the pool light to the electrical system or in the main load center for the pool (breaker box). The GFI consists of a reset button and a small square button marked "test". To test the effectiveness of the GFI first press the "test" button, it should trip. Next, depress the "reset" button. You should hear a clicking sound. This tells you that the shock protection is intact. Perform this test once a month to be sure your GFI is in working order.

Codes- All electrical equipment and wiring must meet the requirements of the local and national codes which apply.

Grounding and Bonding- All electrical equipment must be grounded. All metal objects (ladders, diving platforms, etc.) must be electrically bonded together.

Extension cords- Never use extension cords around a pool or spa. If they get wet, it's an invitation to a shock - possibly a fatal one.

For additional information read the document *Don't Swim With Shocks-click here*

Equipment Safety

Always read the complete owner's manual for all equipment and be certain you have a good understanding of its operation prior to start-up. Compressed air can become trapped within your pump and filter system creating a dangerous amount of pressure- enough to actually blow the lids off of filters or strainers. The manufacturer's owner's manual for your filter system and pump will explain how to safely bleed the air out of your system. **NEVER** start your system without opening the air bleeder valves first. Below is a safety checklist you should routinely perform to be sure your pool and equipment are operating safely and efficiently.

- Main Drain cover is installed correctly, screwed down, unbroken, and certified for that application.
- All skimmer covers are in place, screw-fastened and unbroken.
- Filter pressure gauge is in good working condition and that the filter pressure is within the operating range specified in your filter owner's manual.
- Filter 0-rings are sealing properly and in good condition.
- Filter Tank Clamps and Bolts in place, in good physical condition, and correctly tightened? (Don't try to adjust clamps while the filter is under pressure.)
- Bleed off accumulated air from the system.
- Skimmer baskets and the pump strainer basket empty and free of debris.
- Remove any debris or obstructions from the main drain cover.
- Remove obstructions and combustibles from around the pump motor air vents.
- All chemicals are properly stored (*see chemical safety storage and handling*).
- Pool heater is functioning properly, with no smell of gas around the heater.
- Make sure that all grounding and bonding wires are connected and in good condition.
- Make sure that all wiring connections are tight and clean and that all wiring and electrical equipment are in good condition.
- If equipment is indoors the area should be clear of leaves, debris, and combustibles.

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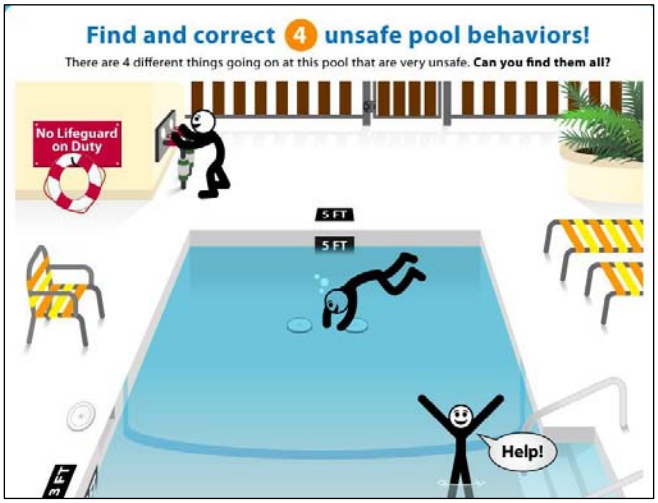
The topic of safety cannot be stressed enough. Adult supervision (knowledgeable swimmer and CPR certified) around the pool is highly recommended. It is also wise to use multiple safeguards or Layers of Protection, mentioned below. As a pool owner it is your responsibility to make your pool environment as safe as possible.

Warning signs or notices supplied by your pool dealer must be applied or posted where they are visible to pool users. Please visit www.poolsafely.gov to learn more about water safety.

Please ask the adults and children that will be using your pool to take a brief water safety quiz- it only take a few minutes- click below.

ADULTS water safety quiz

KIDS water safety quiz


Find and correct 4 unsafe pool behaviors!
There are 4 different things going on at this pool that are very unsafe. Can you find them all?
No Lifeguard on Duty
5 FT
5 FT
Help!

Kids can learn more about water safety by clicking on the picture of the pool above and playing an interactive water safety game on-line at www.poolsafely.gov

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We hope that you have found your Nature's Way interactive pool manual to be an informative and useful tool as you learn about the care and maintenance of your swimming pool. We encourage you to reference this program often to find answers and advice for all of your pool care needs. Remember, if at anytime you have unanswered questions, please contact our customer service center by calling (412) 655-9695 or contact *the store nearest you*.

Questions regarding the operation of your pool manual software should be directed to pool help@poolsoftware.com or by calling customer support at 800-899-7479.

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We would like to thank the Consumer Product Safety Commission (CPSC) and the APSP (Association Of Pool & Spa Professionals) for the use of their safety resources within this program. To learn more about water safety please visit their websites:

www.poolsafely.gov www.theapsp.org

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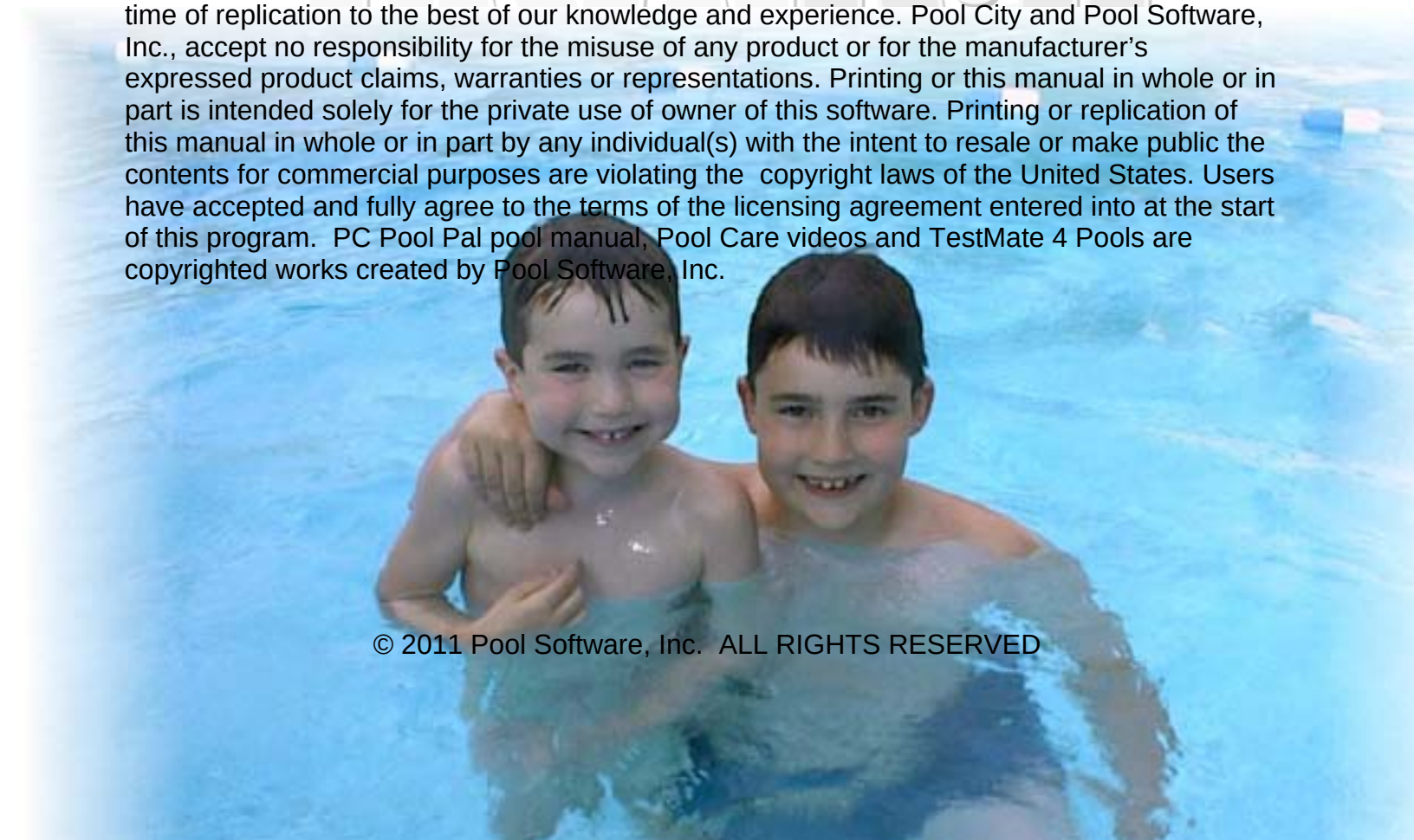

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